

AMERICAN GAS ASSOCIATION

Monthly



JANUARY
1959

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Lovely June Haver, a brunette for the first time since she was 17, displays her all-gas kitchen

THE INDEX to Volume 40, A. G. A. MONTHLY for 1958, will appear in the February MONTHLY instead of the current issue, as has been customary in past years. . . . The gas industry has launched the biggest promotion in its history—a \$30 million effort to capture a giant share of the top-of-the-line appliance business. The campaign (see page 2) got underway on a national and local level with the introduction of new Gold Star standards for gas ranges. . . . In the president's annual report, J. Theodore Wolfe tells on page 3 that the gas industry enters 1959 confident that we will continue our dynamic growth pattern. He points to a record-breaking 32 million customers and annual sales of more than \$4.5 billion as evidence of this confidence. . . . GAMA joins this optimistic outlook by predicting a sales increase of 9.1 per cent over the 1958 total. This annual forecast begins on page 8. . . . Elsewhere on the gas front (see page 10), LP-Gas men report a 9.4 per cent gain in sales during 1958 over the previous year. . . . Mature and experienced management men will have the opportunity to learn how to become better managers this summer when the eighth annual Utility Management Workshop is conducted at Harri-man, N. Y. What makes this school one of the best of its kind is told on page 13.

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Industry opens \$30 million bid for range market



Julia Meade visits with A. G. A. Managing Director C. S. Stackpole on the set during the filming of "Playhouse 90" commercials for the Gold Star promotion

Gas men seek giant share of top-of-the-line appliance business, as campaign opens on national and local level

In a bid to capture a giant share of the top-of-the-line appliance market, the gas industry this month launched the Gold Star Program, an advertising and promotion campaign totaling \$30 million.

The campaign—biggest in the industry's history—got underway on a national and local level with the introduction of new Gold Star standards for gas ranges. The Gold Star will be aggressively promoted as the top symbol of quality in appliances. Gas companies representing 20 million meters will spend in excess of \$25 million at the local level. An additional \$3 million to \$5 million will be spent by A. G. A. and manufacturers at the national level.

Sales of electric ranges in the over \$200 retail category topped 900,000 last year. Gas is currently selling close to 600,000 units in this price class, a healthy increase in total share of market sales. The Gold Star Award, which puts the emphasis on quality and prestige, will strengthen the position of gas in bidding for the top-of-the-line market.

Eventually, the Gold Star label will be made available to an entire family of gas appliances meeting the special Gold Star approval requirements.

Every available media is being used to launch the Gold Star Award. Gas utilities, dealers and manufacturers will back the campaign locally with newspaper ads, special newspaper sections, car cards, outdoor posters, bill stuffers, point of sales displays and radio and TV spot announcements. Empha-

sis will be kept on the Gold Star Award, to allow dealers to promote brand names of their choice.

Theme of the national ads will be "the world's finest range." Treatment will be similar to present range ads which stress automatic features and carry brand name identification.

Playhouse 90 will feature Julia Meade demonstrating gas ranges showing the Gold Star label to 28 million viewers a week.

Gas ranges wearing the Gold Star label have the added advantage of economy of installation and operation. Because they are built to top-quality specifications, they require less maintenance and servicing, resulting in a huge class of satisfied customers made readily receptive to the purchase of other gas appliances.

Manufacturers already signed up for the program are: Athens Stove Works, Inc., The Boston Stove Co., Brown Stove Works, Inc., Caloric Appliance Corp., Crown Stove Works, Dixie Products, Inc., The Eagle Range and Manufacturing Co., Gaffers & Sattler (Division of Utility Appliance Corp.), Glenwood Range Co., Hardwick Stove Co., Inc., Kenmore (Sears, Roebuck & Co.), Magic Chef, Malleable Iron Range Co., Norge Sales Corp. (Division of Borg-Warner Corp.), O'Keefe & Merrit Co., Geo. D. Roper Corp., Sunray Stove Co., The Tappan Co., Tennessee Stove Works, Universal (The Cribben & Sexton Co.), Wedgewood-Holly Appliance Corp., Welbilt Corp., and Whirlpool Corp.

Customers total 32 million in 1958

By J. THEODORE WOLFE

*President
American Gas Association
and
President
Baltimore Gas and Electric Co.*

With a record-breaking 32 million customers and current annual sales of more than \$4.5 billion, the gas utility and pipeline industry enters 1959 confident that it will continue its dynamic growth pattern and provide even greater service to millions of residential, commercial and industrial consumers.

As evidence of this confidence, our industry will spend between \$1.7 billion and \$1.8 billion in 1959 for the construction and development of gas transmission, distribution and storage, with about 97 per cent of these funds earmarked for natural gas facilities. Construction outlays will total \$8.1 billion for the four-year period 1958-61, compared with \$5.7 billion spent in 1954-57 and \$5.1 billion in 1950-53.

Throughout the United States our industry is providing service for 32.1 million utility customers. They receive gas from approximately 1,300 distribution companies supplied by about 100 transmission companies. In addition, some 8.5 million residential customers beyond the present reach of utility mains are served by LP-gas.

Customer increase in 1958

The average number of utility customers served by the industry in 1958 was 31.4 million, an increase of 2.9 per cent over the 1957 average of 30.5 million. The year-end total is 32.1 million.

Utility customers receiving natural gas averaged 28.1 million during the year, a gain of 1.1 million or 3.9 per cent more than the 27 million served in 1957. Manufactured and mixed gas customers averaged 3.1 million, reflecting a decline of 4.5 per cent as former users of these fuels continued to convert to natural gas.

The number of gas utility customers is expected to rise steadily to an estimated 34 million—31.3 million of whom will be residential customers—on the average during 1961, then to an average of 38 million by 1965, including 34.9 million residential users.

With gas replacing oil as the major heating fuel for U. S. homes, the industry's househeating customers now total about 19.1 million, an increase of 6.7 per cent over the previous

year, and will reach approximately 21.6 million by the end of 1960. Gas was the preferred heating fuel in about 48 per cent of the country's estimated 51 million occupied homes and apartments as of mid-1958. Our 19.1 million househeating customers represent 64.7 per cent of all residential gas customers. A year earlier, with 17.9 million househeating customers, the proportion was 62.5 per cent.

Sales and revenues

Revenues from gas utility and pipeline sales to ultimate customers in 1958 soared to an all-time high of \$4,574 million, a gain of 10.6 per cent over the previous record of \$4,136 million a year ago. Natural gas revenues increased 11.3 per cent to \$4,227 million, compared with the 1957 total of \$3,796 million. Manufactured and mixed gas revenues were \$330 million, an increase of 2.2 per cent above the \$323 million in 1957.

Sales climbed to a record high of 79.8 billion therms, moving 3.1 per cent above the 77.4 billion therms sold in 1957. Natural gas sales advanced to a new peak of 77.3 billion therms, up 3.0 per cent from 75 billion therms a year earlier. Manufactured and mixed gas sales amounted to 2.4 billion therms, up 4.2 per cent.

Underground storage and pipelines

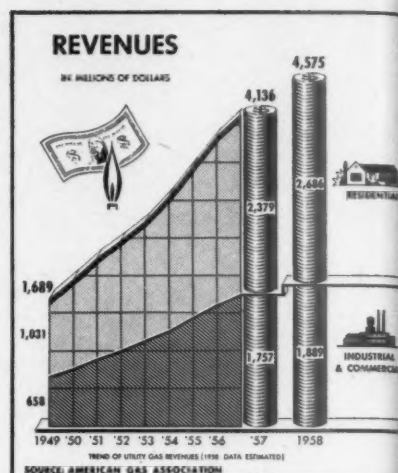
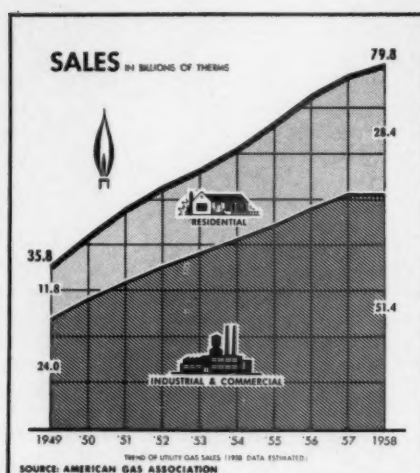
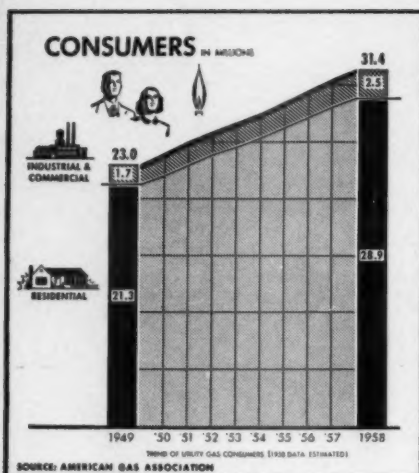
We are steadily increasing our underground storage facilities to permit greater year-round utilization of pipeline capacities and facilitate sales by distribution companies to consumers for heating use.

At the beginning of 1958, there were 199 underground storage pools and 7,969 wells in operation in 19 states—primarily in the Middle Atlantic and East North Central regions—with an ultimate capacity of 2.6 trillion cubic feet.

The amount of natural gas actually in storage reached a new high of 1.7 trillion cubic feet at the end of 1957, with a maximum daily output of 8.8 billion cubic feet. Underground storage facilities are equivalent to 22 per cent of the industry's gas sales to all types of consumers and nearly 70 per cent of total annual sales to residential users.

Capital investment in underground storage fields in 1957 reached \$510 million, up from \$445 million a year earlier. We spent an additional \$67 million for such facilities during 1958.

Moving gas from the well-head to the burner tip requires an intricate network of pipelines stretching to every corner of



the country. Approximately 15,300 miles of pipelines and mains were added in 1958, bringing the total to 564,100 miles. The gas industry has extended its lines by some 225,000 miles in the past 10 years alone. Within the next nine years, gas pipeline and main systems are expected to grow to more than three-quarters of a million miles.

Industry gross plant

The gross plant of the gas utility and pipeline industry at year-end is approximately \$18.4 billion, up 10.2 per cent from \$16.7 billion at the close of 1957. Gross plant will reach an estimated \$19.9 billion in 1959 and is expected to double within the next 10 years, reaching an estimated \$42.1 billion in 1968.

Natural gas reserves

Proved recoverable reserves of natural gas reached an all-time high of 246.6 trillion cubic feet at the start of 1958. Even though net production climbed to a record of 11.5 trillion cubic feet in 1957, a net increase of 8.8 trillion cubic feet was attained through new discoveries and other reserve additions totaling 20.1 trillion cubic feet. During the past decade, additions to reserves have been nearly twice as great as the amount of gas withdrawn.

Ultimate recoverable reserves in the United States alone—without taking into account the vast potential sources of supply in Canada and Mexico—have been estimated by the U. S. Bureau of Mines at approximately 1,000 trillion cubic feet, while other authoritative estimates range from 1,200 to 1,700 trillion cubic feet.

Natural gas reserves are concentrated in six states—Texas, Louisiana, New Mexico, Kansas, Oklahoma and California—which have combined reserves estimated at 229.2 trillion cubic feet, or 93 per cent of the U. S. total.

Gas appliances and equipment

The gas industry intensified its research, development and promotion activities in the field of gas air conditioning dur-

ing 1958. Some of the problems incident to air conditioning, which until recently appeared difficult, are rapidly being solved. Manufacturers, recognizing the tremendous sales possibilities, are aggressively developing competitively-priced equipment with which to capitalize on this rich potential market.

The A. G. A. research program now has developed five air conditioning projects to the operating prototype stage. These include the Swiss open cycle 'sorption system which was demonstrated in 1957, the improved absorption system and the free piston engine-compressor unit shown early in 1958, the long-life engine-driven unit, and the combined crankshaft engine-compressor system which was field-tested on a limited basis during the summer of 1958. The likelihood of a major break-through in air conditioning increases as A. G. A.'s research emphasis shifts to a more fundamental approach rather than the exploration and improvement of known processes.

While researchers continued their quest for the best possible year-round air conditioning system, the gas industry gave energetic support to existing equipment, stepping up both national and local campaigns to build heavier summer loads through air conditioning. Shipments of nearly 3,500 residential units in the first half of 1958 were double the number shipped in the comparable period of 1957. Year-end estimates place 1958 shipments at approximately 7,800 units, compared to less than 2,500 units a year ago.

The smokeless, odorless gas incinerator, introduced early in 1958, culminated five years of intensive research. The result of design and development by the A. G. A. Laboratories, this promising new appliance—already recognized as a practical solution to many air pollution problems—opens a market which industry sources estimate can yield up to 500,000 sales by the end of 1962. Nearly 48,000 units were sold in 1958, and manufacturers anticipate a 36 per cent increase in sales during 1959.

The Whirlpool Corp.'s acquisition of the former Serval gas refrigerator early in the year gave the industry added assurance of a bright future for this important load-building appliance. Whirlpool introduced its new model in late spring, part of its plan to market the first complete line of major gas ap-

pliances under one brand name. Other manufacturers, including Norco, Inc., and Borg-Warner's Norge Sales Corp., also are producing gas refrigerators or have announced plans to introduce gas-fueled models in 1959. One leading appliance manufacturer estimates that gas refrigerator sales volume will reach one million units annually within the next five years.

Shipments of gas appliances and equipment were generally below 1957 levels as consumers tended to defer purchases of major household and other durable goods, but manufacturers now estimate 1959 total sales will increase by more than 4 per cent. Appliance sales showed decided improvement during the final quarter, moving substantially above the last quarter of 1957. This trend is expected to continue through 1959 and into the 1960's.

Sales of gas water heaters and central heating equipment were well ahead of the previous year's total, while range and laundry equipment sales were off from 1957. Built-in range sales climbed by nearly 26,000 units, partially offsetting the drop in free-standing range sales. Manufacturers forecast 1959 total range sales of nearly 1.9 million units, compared to the estimated 1.8 million in 1958.

A. G. A. Laboratories

Approximately 5,000 gas appliances and accessories were received by the A. G. A. Laboratories and approved as complying with the gas industry's stringent standards of performance. Approved equipment is authorized to display A. G. A.'s Listing Symbol or registered Approval Seal, familiarly known as the "Blue Star." More than half of the units approved by the Laboratories were related to central heating. Seven new smokeless-odorless gas incinerators were tested and approved during the year.

Laboratories inspectors traveled more than 150,000 miles and visited approximately 800 production facilities in the United States and Canada. The number of performance checks at points of production was increased during the year as the Laboratories intensified activities in the area of quality control.

Eighteen revised standards for appliances and accessories were adopted to become effective at the beginning of 1959. These include a new standard for gas-operated air conditioning systems. Commencing Jan. 1, 1959, the Laboratories also will enforce a previously-adopted requirement which makes automatic ignition mandatory for all burners on domestic ranges. Requirements already in effect cover the automatic ignition of top section burners.

Domestic, industrial and commercial research activities continued at a high level, with 20 projects under study during the year.

Promotion, advertising and research

A. G. A.'s highly successful Promotion, Advertising and Research (PAR) Plan completed its 14th year of coordinated activities in the fields of promotion, advertising, utility company research, pipeline research and public information. Gas utility and pipeline companies subscribed more than \$3,550,000 to PAR in 1958, and the 1959 budget has been increased by another \$220,000 to broaden and accelerate PAR activities.

PAR's national advertising program in 1958 scheduled \$1,813,000 in ads appearing in magazines of general and

Sales and revenues

TOTAL GAS UTILITY INDUSTRY CUSTOMERS, SALES AND REVENUES

Preliminary 1958 Compared with 1957

	1958	1957	Per Cent Change
CUSTOMERS (at December 31)			
Residential	29,535,300	28,612,000	+ 3.2
Commercial	2,375,000	2,289,000	+ 3.8
Industrial	134,300	131,300	+ 2.3
Other	37,100	33,100	—
Total	32,081,700	31,065,400	+ 3.3
CUSTOMERS (Average)			
Residential	28,933,800	28,101,200	+ 3.0
Commercial	2,268,500	2,211,100	+ 2.6
Industrial	132,300	132,000	+ 0.2
Other	36,100	31,700	—
Total	31,370,700	30,476,000	+ 2.9
SALES (Thousands of Therms)			
Residential	28,438,600	25,985,000	+ 9.4
Commercial	7,650,600	6,988,900	+ 9.5
Industrial	40,361,100	40,475,500	- 0.3
Other	3,317,100	3,949,000	—
Total	79,767,400	77,398,400	+ 3.1
REVENUES			
Residential	\$2,686,299,000	\$2,378,938,000	+12.9
Commercial	571,736,000	505,678,000	+13.1
Industrial	1,217,860,000	1,149,955,000	+ 5.9
Other	98,636,000	101,844,000	—
Total	\$4,574,531,000	\$4,136,415,000	+10.6

NATURAL GAS CUSTOMERS, SALES AND REVENUES

Preliminary 1958 Compared with 1957

	1958	1957	Per Cent Change
CUSTOMERS (at December 31)			
Residential	26,513,000	25,492,000	+ 4.0
Commercial	2,176,000	2,079,000	+ 4.7
Industrial	116,000	114,000	+ 1.8
Other	35,000	31,000	—
Total	28,840,000	27,716,000	+ 4.1
CUSTOMERS (Average)			
Residential	25,882,000	24,902,300	+ 3.9
Commercial	2,067,000	2,000,100	+ 3.3
Industrial	114,000	113,800	+ 0.2
Other	34,000	29,600	—
Total	28,097,000	27,045,800	+ 3.9
SALES (Thousands of Therms)			
Residential	26,614,600	24,277,700	+ 9.6
Commercial	7,352,800	6,693,900	+ 9.8
Industrial	40,031,700	40,120,200	- 0.2
Other	3,283,800	3,921,100	—
Total	77,282,900	75,012,900	+ 3.0
REVENUES			
Residential	\$2,415,656,000	\$2,117,853,000	+14.1
Commercial	527,448,000	461,040,000	+14.4
Industrial	1,187,657,000	1,118,055,000	+ 6.2
Other	96,592,000	99,902,000	—
Total	\$4,227,353,000	\$3,796,850,000	+11.3

specialized fields. These publications, with a circulation of nearly 38.5 million, delivered more than 250 million sales messages to consumers. Many major appliance and equipment manufacturers cooperated in PAR's direct space-sharing advertising program.

The gas industry's continued national sponsorship of the award-winning TV dramatic series, *Playhouse 90*, now in its third season, carried the story of gas and modern gas appliances to an estimated 12 million homes each week. More than \$2.6 million was subscribed by gas utilities, transmission companies and manufacturers to support the industry's television program in 1958. The television budget for next year has been increased to \$3,220,000, which is in addition to subscriptions to the PAR Plan.

Major promotion achievements include a record-breaking "White Christmas" appliance promotion featuring Hollywood's Fred MacMurray and June Haver; the Mrs. America contest, won by Mrs. Helen Giesse of Cleveland, Ohio, and sponsored by A. G. A. for the fifth year; and the nationwide activities of the New Freedom Gas Home Bureau. Other activities include extensive gas appliance tie-ins with motion pictures and television, merchandising aids, educational campaigns, and similar programs to expand the appliance market and the gas industry in general.

A major PAR activity for 1959 will be the \$30 million Gold Star range promotion program to be launched in January. Theme of the national advertising phase will be "The World's Finest Range—and It's Gas!" Gold Star ranges will be intensively promoted in 17 *Playhouse 90* television commercials and in leading shelter and trade magazines.

The nation's leading manufacturers will produce top-of-the-line ranges, built to Gold Star standards and marketed under their own names. These appliances will conform to the highest and most rigid specifications in gas industry history.

As PAR's Public Information Program completed its fourth year, A. G. A. activities in developing better public relations for the gas industry won national recognition. The Association was awarded the 1958 *Public Relations News* Achievement Award for one of the 10 best public relations programs in the nation and was cited for "the vitality and effectiveness of its program to increase public understanding of the contributions of the gas industry to the American economy."

Major emphasis was placed on investor relations, telling the facts on government in gas, employee recruitment, a series of five regional public relations workshops, a national publicity program on gas, and greater stimulation of coordinated local PR action.

The second annual A. G. A. Public Relations Achievement Award was won by the Quebec Natural Gas Corp. This new Canadian company gained wide public acceptance and understanding when it took over a government-owned manufactured gas utility and transformed it into an investor-owned utility serving natural gas to metropolitan Montreal.

Research activities financed by the PAR Plan made significant technical contributions to gas industry progress, particularly in gas air conditioning and domestic utilization. Seventeen new projects were launched during the year, 65 were continued from 1957, and 27 were concluded.

PAR research in the field of air conditioning has carried five major projects forward to the prototype stage. A high-speed radiant oven and a greatly improved flexible gas connector are among the year's most important developments in the area of domestic gas research. In industrial and commercial gas utilization, dramatic progress was made in increasing food production capabilities and in the development of fry top sections and temperature control systems.

Gas operations research in 1958 was highlighted by the development of processes to produce synthetic pipeline gas and formulation of a broad research program on distribution system problems. In pipeline research, we have developed methods of increasing gas deliverability from "drowned" wells, applied radioactive tracers to flow rate determination problems, and developed devices and techniques to reduce noise levels at compressor and regulator stations.

The "Multimatic Wall," a striking new concept of the all-gas home, was completed early in the year under PAR research and publicly exhibited during the 1958 A. G. A. convention. The "Multimatic Wall" features five of the seven major residential uses of gas in one packaged kitchen wall. Equipment for cooking, laundering, househeating, refrigeration and water heating is incorporated in the prototype unit.

Exciting developments which have made 1958 a "break-through" year in so many areas of operation provide the gas industry with a sound basis for great optimism regarding 1959 and the years to come.

Commercial equipment displayed at 2 Ohio meetings

Commercial gas equipment was in the spotlight at two meetings recently in Columbus, Ohio.

The Ohio Fuel Gas Co., The East Ohio Gas Co., and Cincinnati Gas and Electric Co. joined to display the largest booth—120 feet long—at the 39th annual Mid-American Restaurant Exposition. Sponsored by the Ohio State Restaurant Association, the three-day show attracted 9,871 restaurant owners and employees from Ohio and other Mid-west states.

Commercial equipment also was displayed by Ohio Fuel and East Ohio at

the annual Ohio School Boards convention held at the Veterans Memorial Building in Columbus.

Educators visited the gas company's booths which displayed commercial water heaters, heavy-duty incinerators, a stainless-steel battery of Magic Chef cooking equipment, a Garland range and bake oven, a Market Forge combination steamer and kettle, a Super Chef combination steamer and kettle, a Martin Oven, a Savory gas toaster, and a Groen gas kettle.

The restaurant exposition, also held at the Veterans Memorial Building, dis-

played 136 commercial exhibits. In addition to the gas company's booths, nine other booths were utilized by distributors to display commercial equipment.

Gas was used for sample food preparation in 12 other booths, and in the show's new products center.

On the final day of the show, Ohio Fuel's commercial sales manager, Thomas Z. Dunn, was a featured speaker during an afternoon program. He discussed "Quality, Quantity Steam Cookery," as it relates to gas-fired steam-jacketed kettles and gas-fired compartment steamers.

A.G.A. in Action

Thumbnail sketches of current activities at Association Headquarters and Laboratories

A just-completed Bureau of Statistics analysis of prompt payment discounts and late payment penalties shows that 493 of the 953 companies listed in the *A. G. A. Rate Service* manual use either a penalty or discount procedure. Of the 493 listed, 270 use late payment penalties and 236 use prompt payment discounts. Some companies use varying practices in different parts of their service areas.

In discounts, 171 companies offer a specific dollar amount; others use a percentage method, with 10 per cent being most common. For penalties, 240 companies use a percentage procedure; the remainder employ a specific dollar amount.

The study also found a diversity of procedure used within the same states. Three tables indicating number of companies using these procedures and frequency with which percentage rates or specific amounts are employed are available upon request from the Bureau.

Available from the Bureau of Statistics are proceedings of the seminar on consumer surveys conducted Sept. 29-Oct. 1 by the Marketing Research Committee at Bedford, Pa. Discussions included purposes of such surveys, data obtainable, design of the questionnaire, pre-testing, tabulating procedures, interpreting facts for management according to pre-determined purposes of the study, and case studies of consumer surveys undertaken by gas companies. Copies are available from A. G. A. at \$5 each.

In a letter to members of the Industrial and Commercial Gas Section, Hayes S. Walter, manager of commercial promotion, has suggested that the industry promote the term "hearth broiled" for future use by restaurant operators who now advertise "charcoal-broiled" steaks, but do not use charcoal for this purpose.

The letter follows a "crackdown" by the Bureau of Weights and Measures in New York City on restaurant operators advertising steaks as "charcoal broiled" without employing charcoal. New York inspectors are entering kitchens where "charcoal-broiled" steaks are listed on the menu, and are ordering operators to drop the term if broiling is done by other methods.

Since it is reasonable to assume that this action may eventually be taken in other areas, Mr. Walter believes we have an opportunity to build acceptance of gas-broiled steaks by introducing the term "hearth broiled," which more closely identifies the best in broiled foods with the use of gas.

An Industrial and Commercial Gas Section Task Force is developing a program for the 1959 Sales Conference on Industrial and Commercial Gas, which is set for April 7-9 in Philadelphia's Hotel Warwick. Committee meetings will be held on April 6 and April 9.

The "Multimatic Wall" has been named one of the top 15 major advances through research in 1958 by *Building Products*, national trade magazine for the building industry. The magazine's selection was based upon reader interest. The top 15 were chosen from among 2,850 developments reported in 1958.

Two booklets produced by the Public Information Bureau have been brought up to date in order to be of more value to gas companies as practical public relations tools. The revised editions, scheduled for distribution this month, are *Meet the New Gas Industry* and *9 Tips on Enjoying Modern Gas Service*. A new publication, made available in mid-December, is an illustrated *Do You Know?* booklet which explains the properties of natural gas. It was adapted from a pamphlet produced by Southern California Gas Co.

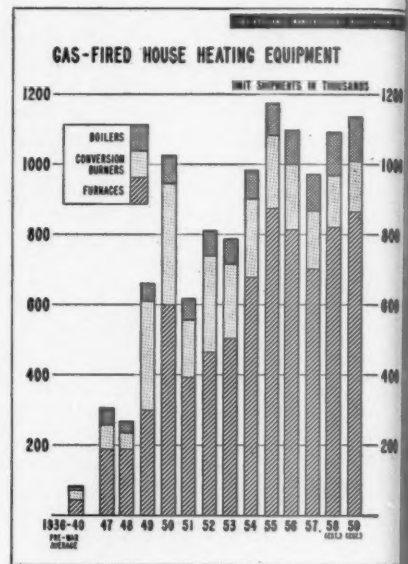
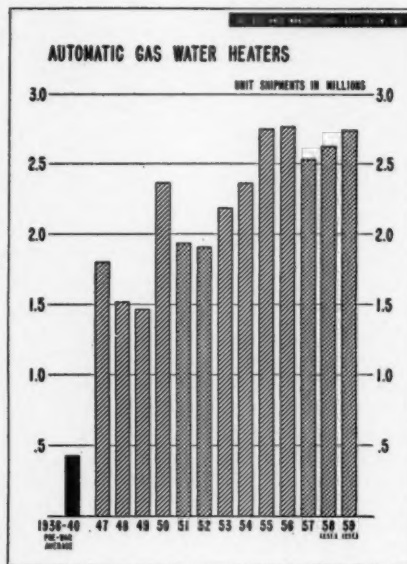
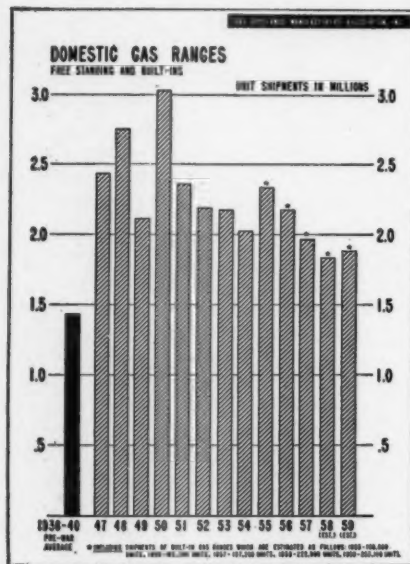
The Customer Service Committee's National Appliance Field Observation Program (Operating Section) will be initiated at the A. G. A. Laboratories this year. Under this plan, utilities will forward to the Laboratories reports on appliances which have required service. It is hoped that, through these reports, information leading to improved design and performance will be gained. During 1958, committee members submitted such reports to the Laboratories in a test program. Some 10 per cent of those reports ultimately led to manufacturing changes.

A three-week shooting schedule of 25 new gas industry TV commercials—including 17 dealing with *Gold Star ranges*—was completed Dec. 19. Notices have been sent to TV subscribers, and reels and additional prints of the commercials will be available about Feb. 1. Featuring Julia Meade, the commercials will be seen on *Playhouse 90*.

J. A. Hickey of Southern Union Gas Co. has been named chairman of the 1959 "Materials Exchange Display" which will be held in conjunction with the 11th annual *Accident Prevention Conference* Sept. 15-16 in Atlanta, Ga. Some 50 companies are expected to display samples and examples of the accident prevention materials, gadgets and gimmicks, which they have used successfully in past months.

The program for the 1959 commercial gas water heating sales and promotion campaign is now ready for distribution. The campaign, called "Hi-Load," has been broadened in scope this year so that it can reach new markets and applications for automatic gas water heating. Supporting manufacturers are offering printed sales materials which are expected to strengthen the campaign's mail selling programs.

GAMA sees sales up 9.1 per cent



Gas appliance shipments in 1959 will top the 1958 total by 9.1 per cent. These figures were determined through an analysis of a poll of manufacturers who usually account for 70 per cent of the industry's output of household and commercial gas equipment.

Replies to a questionnaire issued by Edward R. Martin, director of marketing and statistics for the Gas Appliance Manufacturers Association, showed that only 33 of 286 individual responses anticipate a business decline in 1959.

Highly optimistic, GAMA reported, are the makers of gas-fired furnaces who believe sales will lift the industry total 13 per cent above the 818,600 units shipped in 1958 to an all-time high of 925,000.

GAMA's boiler division, which established a shipment record of 120,900 units in 1958, shares the enthusiasm of the furnace men. Of the 24 makers of steam and hot water heating systems re-

porting, all but two look for a further increase in the new year. Fulfillment of their individual expectations would mean a boost of 8.8 per cent to a peak of 131,500 units.

Gas conversion burners, which have figured prominently in millions of conversions from solid and liquid fuels to gas for house-heating in recent years, see sales of 160,600 units in 1959. This would represent an increase of 6.5 per cent from 1958 figures and bring total gas central heating sales to a record total of 1,217,100 units, or 11.6 per cent above 1958 results.

Producers of automatic gas water heaters say the new year will be one of their best, particularly in an expected increase of 9.6 per cent in sales of heaters of 40-gallon capacity and over, from 747,200 units to 818,900. This surge in higher-capacity heaters will raise the dollar volume of all-size sales which are expected to total 2,772,100 units in

1959, or 5.7 per cent higher than the 2,621,700 total of the current year.

"An analysis of forecasts by individual gas range manufacturers indicates that sales of free-standing and built-in models could be increased by as much as 8 and 25.6 per cent, respectively, to a combined total of 2,023,900 units," Mr. Martin said. This would exceed the 1958 total of 1,837,600 by 10.1 per cent.

Sales of gas-fired direct heating equipment (consoles and other models used for warming individual rooms and add-on space) may total 1,451,600 units, or 7.9 per cent above 1958 levels. Larger gains are anticipated by makers of unit heaters (high-heat-producing units for stores, factories, farm buildings, etc.) and duct furnaces. Total sales of the former are expected to reach 124,300 units, an improvement of 12.9 per cent, and 20,300 for the latter, up 11.5 per cent.

A big gainer in 1958—vented re-

cessed gas wall heaters—can do even better in the new year, if all companies perform up to predictions. Sales of these heaters, which draw outside air for combustion and vent to the outside, are expected to increase 20 per cent to 456,000 units. A decrease of 4.3 per cent is seen for gas floor furnaces, from 94,900 to 90,800 units.

Sizeable improvement is forecast also by makers of gas-fired incinerators (36.3 per cent to 65,300 units), gas clothes dryers, including washer-gas dryer combinations (12 per cent to 461,600 units), and gas-operated commercial ranges for public and institutional eating establishments (up 10.6 per cent to 34,300 units).

All told, Mr. Martin said, household and commercial units to be shipped in

1959 may come to 8,737,300, as compared with 7,988,500 in 1958.

"Shipments in the final quarter of 1958 showed that the economy has reached the end of the recession and is benefiting by the reversal of the public's earlier tendency to defer purchase of major consumer items," he added.

The gas equipment industry will take advantage of stepped-up home construction and modernization when the "Gold Star" program is launched, beginning with gas range promotion, to draw attention to top-of-the-line models and earn a larger share of the "quality market." The program will involve expenditures of more than \$30,000,000 by individual gas utilities and will emphasize gas water heaters and incinerators as well as cooking equipment.

Gas refrigeration and air conditioning are expected to come into major prominence in 1959, with several manufacturers participating for the first time in each field. The resurgence of gas lamps, which "took hold" among builders and architects earlier this year for lawn, patio, terrace and other decorative lighting uses, was described by Mr. Martin as "no flash in the pan." At least six manufacturers of gas lamps are likely to form the nucleus for a new division of the association during the year.

While no industry-wide poll was made of industrial gas equipment designers, individual manufacturers have been kept busy producing new gas-operated equipment used in a variety of industries to produce thousands of items of consumer goods, the GAMA official said.

U. S. Supreme Court reverses Memphis Decision, 5 to 3

The U. S. Supreme Court, in a 5 to 3 decision, has reversed the ruling of the Court of Appeals for the District of Columbia in the Memphis Case.

The majority opinion, delivered by Justice Harlan and concurred by Justices Brennan, Frankfurter, Stewart and Whittaker, upheld the FPC's long-established practice in gas rate cases of allowing proposed higher rates to go into effect, subject to refund, after a five-month suspension period from the date when it would otherwise have gone into effect.

Dissenting with the majority were Chief Justice Warren and Justices Black and Douglas. Justice Clark did not participate in the decision.

Justice Harlan, who also wrote the

majority opinion in the Mobile Case, stated that in the Memphis Case, United Gas Pipe Line Co. "bound itself to furnish gas to these customers during the life of the agreements not at a single fixed rate, as in Mobile, but at what in effect amounted to its current 'going' rate. Contractually, this left United free to change its rates from time to time, subject, of course, to the procedures and limitations of the Natural Gas Act. In such circumstances there is nothing in Mobile which suggests that United was not entitled to file its new schedules under Section 4(d), or that the Commission had no jurisdiction to consider them under Section 4(e)."

Justice Harlan further stated that "the important and indeed decisive dif-

ference between this case and Mobile is that in Mobile, one party (Ed. note: United Gas Pipe Line Co.) to a contract was asserting that the Natural Gas Act somehow gave it the right unilaterally to abrogate its contractual undertaking, whereas here, petitioner (Ed. note: United Gas Pipe Line Co.) seeks simply to assert, in accordance with the procedures specified by the Act, rights expressly reserved to it by contract."

The Supreme Court, in reversing this decision, ruled that it was the intent of Congress in drafting the Natural Gas Act, to protect not only the public from excessive gas prices but also the legitimate interests of natural gas companies "in whose financial stability the gas consuming public has a vital stake."

Pennsylvania Natural Gas Men's Association honors past presidents

A GROUP OF PAST PRESIDENTS of the Pennsylvania Natural Gas Men's Association were honored at that organization's 35th annual dinner held recently in Pittsburgh.

J. G. Montgomery, Jr., United Natural Gas Co., 1958 Association president, presented the names of those honored: A. Hurlburt, president during 1924-25, Equitable Gas Co.; J. B. Tonkin, 1925-26, The Peoples Natural Gas Co.; S. W. Meals, 1926-27, Carnegie Natural Gas Co.; George Wittmer, Jr., 1927-28 and 1941, American Natural Gas Co.; George W. Ratcliffe, 1928-29, The Manufacturers Light and Heat Co.; George E. Whitwell, 1929-30, Equitable Gas; George E. Welker, 1930-31 and 1944, United Natural Gas; E. S. Templeton, 1931-32, Greenville Natural Gas Co.; and J. French Robinson, 1932-33, Peoples Natural Gas, also a past

president of the American Gas Association.

Others were F. F. Schauer, 1933-34, Equitable Gas; G. W. Harr, 1934-35, Monongahela-West Penn Public Service Co.; T. B. Gregory, 1935-36, Manufacturers Light and Heat; H. D. Freeland, 1936-37, independent producer; F. M. Brewster, 1937-38, Belmont Quadrangle Producing Co.; W. H. Locke, 1938-39, United Natural Gas; W. H. Haupt, 1939-40, contractor and independent producer; and C. E. Bennett, 1942-43, Manufacturers Light and Heat, also a past A. G. A. president.

Still others honored were D. S. Keenan, 1945, Carnegie Natural Gas; B. D. Phillips, 1946, T. W. Phillips Gas and Oil Co.; E. M. Borger, 1947, Peoples Natural Gas; D. P. Hartson, 1948, Equitable Gas; J. H. Isherwood, 1949, North Penn Gas Co.; I. K. Peck, 1950, Manufacturers Light and Heat; J. J.

Jacob, Jr., 1951, Peoples Natural Gas; H. H. Pigott, 1952, Equitable Gas; H. S. Rose, 1953, United Natural Gas; F. N. Wolf, 1954-55, Equitable Gas; Fred W. Batten, 1956, Manufacturers Light and Heat; and Christy Payne, Jr., 1957, Peoples Natural Gas.

After hearing a brief address by Past President Bennett, guests at the dinner welcomed the main speaker of the evening, Chester S. Stackpole, A. G. A. managing director. Mr. Stackpole's topic was "Gas—Its Past, Present and Future."

During the dinner, Mr. Stackpole was presented with an "enemy light bulb" captured by Equitable Gas during the conversion of the street lights on Pittsburgh's Lower Oliver Street from electricity to gas. The confiscated trophy and an accompanying battle citation are now displayed at A. G. A. Headquarters.



'58 LP-Gas sales up 9.4 per cent

By **GEORGE R. BENZ**
PAUL W. TUCKER
W. F. DEVOE

Phillips Petroleum Co.
Bartlesville, Okla.

LP-Gas sales in 1958 increased by 652,300,000 gallons—9.4 per cent over 1957—sending sales to a rousing total of 7,591,400,000 gallons.

This is 30 per cent above the average annual sales (for 1950 through 1958) of 500 million gallons. The upward trend is expected to continue, principally due to the tremendous domestic, motor fuel, and chemical potential still existing.

Domestic and commercial sales, con-

(This report on the LP-Gas industry is prepared annually by Phillips Petroleum Co. Mr. Benz is manager, engineering department; Mr. DeVoe is manager, LP-Gas sales, sales department; and Mr. Tucker is technical representative, engineering department.)

tinuing to account for nearly one-half of total sales, reached 3,534,300,000 gallons, up 467,230,000 gallons or 15.2 per cent over the 3,067,070,000 gallons sold in 1957. This equals 46.5 per cent of total sales as compared with 44.2 per cent in 1947 and 45.5 per cent in 1946.

Prolonged cold during February and March in the South and Southeast resulted in an abnormally high demand for LP-Gas, principally for house heating. Some 230 million gallons of the domestic and commercial market increase occurred primarily for this reason.

The most important factor in domestic growth continued to be house heating. Central gas heat is becoming more popular, and new customers continued to convert to LP-Gas from other fuels for house heating.

In most areas, the conversion of 100-pound cylinder customers to bulk distribution continued. When domestic

customers expand their use of gas beyond the cooking and water heating load, they "graduate" into the bulk type of distribution.

The use of gas in agriculture continued to expand, increasing the summer load. Some of the agricultural uses are for irrigation pump engines, crop and grain drying by both custom dryers and individual farmers, farm tractors, and weed burning.

Normal growth continued to account for part of the increase in the domestic market. New bulk plants were constructed and customer installations were increased.

More and more homes are enjoying the convenience of modern gas appliances and are being "dressed-up" by outside gas lights. In the house heating field the trend of converting from individual space heaters to central gas heating continued.

Residential gas air conditioner sales

exceeded 7,000 units in 1958, compared to approximately 2,500 units sold in 1957. Although most of the air conditioners sold use natural gas, the sales figures indicate the growing demand for LP-Gas units.

Motor fuel sales were up 16,200,000 gallons, 2 per cent over 805,056,000 gallons sold in 1957, to 821,200,000 gallons, despite reduction in two principal motor fuel uses. Motor fuel sales equaled 10.8 per cent of total sales, indicating that the market has kept pace with industry growth.

Motor fuel used for irrigation pump engines fell far behind previous years due to heavy rainfall in the principal irrigation areas. Reduced oil well drilling resulted in less LP-Gas used for this purpose. Other motor fuel applications, however, offset these reductions.

Substantial gains continue to be made in the use of LP-Gas in industrial tractors and lift trucks, cargo truck refrigeration units, ready-mix concrete trucks, farm tractors, taxicabs, and small fleet trucks.

Materials-handling equipment continues as the fastest growing individual market for motor fuel. A majority of the industrial tractor and lift trucks are now factory-equipped for LP-Gas, and conversion of gasoline units continues. An increasing number of the airlines are converting their industrial tractors to use LP-Gas for motor fuel.

It is also the dominant fuel for cargo refrigeration units in the trucking industry. Railroads are using the gas both to drive mechanical refrigeration units on refrigerator cars and to provide power to operate electrically-driven circulating fans in the ice-refrigerated cars.

Farm tractors represent the largest volume motor fuel use. It is estimated that motor fuel sales for farm tractor use increased 5 per cent over 1957. More than 12,000 of the tractors produced in 1958 were factory-equipped for LP-Gas, and the conversion of gasoline tractors to LP-Gas continues at a vigorous pace.

During most of 1958, LP-Gas appliance sales fell behind the same period in 1957. This situation was a continuation of the decline in all durable goods sales which developed in 1957, but last quarter 1958 indications were that the tide had turned. Sales improvements were in evidence and there was good reason to believe that the bottom of the appliance sales curve was passed. New family formations, home building, and an in-

crease in replacement buying appear to be the strengthening factors as industry goes into the year of 1959.

Domestic LP-Gas range sales for 1958 were about 355,400, or 20 per cent of all domestic gas range sales. Built-in gas ranges continued to be popular and sales were well ahead of 1957 with an increase of more than 10 per cent. Total shipments of all gas built-in units in 1957 were 197,200.

Automatic LP-Gas water heater sales for 1958 are estimated to be 283,000, almost equaling the 292,707 shipped in 1957. In 1958, LP-Gas water heater sales represented approximately 11 per cent of all automatic gas water heater sales.

LP-Gas vented recessed wall heaters reached 55,500 units or nearly 15 per cent of all vented recessed wall heaters. LP-Gas floor furnace sales were 20,700 units, or 25.8 per cent of the 80,200 gas floor furnace sales.

Sales of direct heating equipment for use with LP-Gas reached 382,800 or 27.4 per cent of total direct gas heating equipment sales (1,397,000 units).

Warm air furnace sales were 795,400 units with 73,200 LP-Gas units (a little under 10 per cent of the total). Conversion burners reached a total of 156,000 units with 4,700 units for use with LP-Gas (3 per cent of total).

Industrial and miscellaneous uses consumed an estimated 748,400,000 gallons of LP-Gas in 1958. This is a 63,100,000 gallon or 9.2 per cent increase over 1957, and appears impressive in view of the generally reduced industrial activity. However, the unusually cold weather resulted in heavy use of LP-Gas "stand-by" facilities. Its use in the secondary recovery of crude oil is estimated to have increased more than 20 per cent this year. This is a promising use but difficult to predict at this time. Interesting is the fact that much of the volume "used" in secondary recovery operations will, no doubt, be "produced" again. The highway construction program continues to make asphalt aggregate drying plants a very attractive load builder for many dealers.

The gas utilities used an estimated 254,500,000 gallons of LP-Gas, an increase of 10.1 per cent or 23,300,000 gallons over those used in 1957. This was primarily due to the unseasonably cold weather, particularly in the Southeast. Gas utility companies continue to be interested in large-volume LP-Gas

storage facilities, both aboveground and underground, with one large volume refrigerated storage facility being added during the year.

Despite the recession, the sale of LP-Gas as a raw material for the manufacture of chemicals and chemical intermediates gained 7.9 per cent or 136,900,000 gallons to a total of 1,869,200,000 gallons. This is a much greater percentage gain than that enjoyed by the chemical industry as a whole, whose gain in volume produced has been estimated at 2 per cent over that of 1957.

Feedstock for polyethylene manufacture continues to be the most rapidly growing chemical market, although production capacity has temporarily outstripped demand. While ethylene oxide and ethyl alcohol continue to rank first and second in ethylene requirements, polyethylene is almost on a par with ethyl alcohol and is gaining rapidly on ethylene oxide. One of the features of the past year has been the increase in ethylene production from butane and propane as compared to production from ethane or recovery from refinery gases.

An interesting and entirely unexpected development in the demand for polyethylene arose from the "hula hoop" fad. It has been estimated that, through October, more than 16 million hoops were made of polyethylene. While this demand was not a major factor in the increased market for polyethylene, it illustrates the point that availability and adaptability of this polymer encourages new uses of an unpredicted nature.

The consumption of propylene for chemical and chemical intermediates also continued to increase. Almost 60 per cent was used in the manufacture of isopropyl alcohol. Other petrochemicals and intermediates consuming propylene, such as propylene trimer, tetramer, and higher polymers were in increased demand. Propylene oxide and its derivatives have found a promising market in the manufacture of urethane foams used as cushioning materials.

Butadiene, produced from refinery butylenes or normal butane, suffered a major loss in its primary markets, synthetic rubber and latex. As a result, more effort was directed to its use as a chemical intermediate in the manufacture of nylon, isosebacic acid, rubber base paints and fungicides.

The use of LP-Gas in the manufac-

ture of synthetic rubber components decreased an estimated 13 per cent during 1958 to a total of 363,800,000 gallons. This decrease of 54,400,000 gallons can be attributed to the fact that new car production was greatly reduced and the fact that inventories both of synthetic rubber and butadiene were reduced during the year.

Over-all production of LP-Gas at natural gasoline plants and refineries increased approximately 2 per cent during 1958. Twenty-six new plants came on stream during the year and several existing facilities were expanded. It is estimated that 13 new plants will be added in 1959. Canadian LP-Gas production capacity is expanding rapidly, but the effect of this capacity on the U.S. market is as yet an unknown factor.

Underground storage capacity continues to grow. The available underground storage capacity now is more than 1.6 billion gallons, an increase of almost 20 per cent over 1957, with an additional 100 million gallons currently under construction. Additional underground storage is in the planning stage.

Improvements of transportation facilities were highlighted during the year by conversion of the Little Big Inch

PRINCIPAL USES OF LP-GAS SHOWN IN PER CENT OF TOTAL SALES

Principal Uses	1950	1951	1952	1953	1954	1955	1956	1957	1958
Domestic	58.1	51.2	50.6	50.3	51.2	45.8	45.2	44.2	46.5
Motor Fuel	3.7	6.9	8.3	10.1	10.7	10.6	11.7	11.6	10.8
Industrial and Misc.	6.5	6.4	7.6	7.6	7.8	9.1	9.9	9.9	9.9
Gas Mfg.	7.2	6.6	5.8	4.5	3.8	3.5	3.2	3.3	3.4
Chemical Mfg.	17.9	20.0	19.4	19.6	20.5	24.4	23.7	25.0	24.6
Rubber Components	6.6	8.9	8.3	7.9	6.0	6.6	6.3	6.0	4.8
TOTAL									100

Pipeline from natural gas to refined petroleum products (including LP-Gas) service with a capacity of 185,000 barrels per day.

Pipeline movement of LP-Gas was further increased by the addition of both lines carrying natural gas liquids and comparatively short pipelines to carry chemical plant feedstocks, particularly in the Gulf Coast Area.

The rail transportation picture was improved somewhat by the fact that railroads rejected an authorized rate increase in 10 Southeastern states. In addition there will be substantial general rail freight reductions in effect early in 1959. Although more LP-Gas was shipped by rail in 1958 than 1957, the active tank car fleet was reduced by the end of the year.

Water transportation of LP-Gas continues to receive considerable attention.

Three new inland waterway barges were placed in service during the year and one new ocean-going tanker is under construction and scheduled for delivery early in 1959.

Movement of LP-Gas by transport trucks continued to grow at a rapid rate with transports having a water capacity of 10,000 gallons becoming more and more common with the more widespread use of high strength steels and the emphasis that is being placed on reduction in dead weight of these units.

Pamphlet 58, an LP-Gas industry publication, published by both the National Fire Protection Association and National Board of Fire Underwriters, was again revised to keep pace with new developments in equipment and safe operating techniques. Even more significant was the substantial revision of NFPA Pamphlet No. 59, covering LP-Gases at utility gas plants, to recognize and provide properly for use of containers having a water capacity of up to 200,000 gallons in such facilities.

The National LP-Gas Council completed its eighth year of operation as the recognized advertising and public relations agency of the industry. Significant increases in membership of all segments of the industry—producer, marketer, appliance and equipment manufacturers—enabled the Council to record growth in both number of participants and dollar volume of contributions, and made it possible for this organization to increase its advertising and public relations service for the industry as a whole.

The Dealer Sales Aid Section of the Council produced and distributed items of interest and assistance to the marketers, making it possible for them to tie into the national advertising and sales promotion activities at the local level. Ambitious plans for 1959 have been formulated to increase public acceptance and interest in LP-Gas.

With the economy showing definite recovery trends, there is every indication that 1959 will be another good year. The trend to suburban living will probably continue and new home construction appears very bright.

Kitchen wins top prize at California fair



Pictured is the center section of the Lanai Kitchen, designed by "Sunset" magazine for exhibition at the recent California State Fair. During the 12-day exposition, some 280,000 people visited the kitchen, which was awarded a prize as the best exhibit in the fair's appliance division. The kitchen was sponsored jointly by the Gas Appliance Society of California and Pacific Gas & Electric Co.



Professor Robert T. Livingston directs the annual Utility Management Workshop



E. R. Acker, a gas utility president, is the Workshop Advisory Board chairman



This is Arden House, one-time estate of former Gov. Harriman, and site of the Workshop

You can become a better manager

Secluded from the distractions of the city atop a 1,300-foot ridge in the Ramapo Mountains at Harriman, N. Y., is luxurious Arden House, the one-time estate of former New York Governor W. Averell Harriman.

There, some 30 utility executives will gather this summer to learn how to become better managers.

Representing the gas, electric, telephone and railroad industries, the students will be attending the eighth annual Utility Management Workshop July 26-Aug. 7.

The Workshop is directed by Robert T. Livingston, professor of industrial and management engineering at Columbia University. It is sponsored by Columbia's department of industrial and management engineering.

As in past years, Professor Livingston

has mapped out a program designed to help the executive prepare himself to do a better job for his company.

What makes this Workshop unique, and why is it considered the outstanding two-week management course operating today?

One reason is that its method is based upon discussion and real problem-solving in small groups. Participants formulate and analyze problems of special interest, and attempt to find solutions within the framework of broad understanding of management.

Staff members and outside utility experts are brought in to comment upon certain phases of management and to serve as consultants for the problems under study.

It is, however, in the small group that the real activity is carried on. The select

caliber and limited number of enrolled members is an added advantage of the Workshop because it allows for close relations between members and staff.

The Workshop's objectives are:

1. To help the executive gain a better understanding of his job, what he is doing as a manager, and why.
2. To present results of research and studies in management, and the application of behavioral sciences to management.
3. To further advances in the development of a valid theory of management.
4. To present the best tested methods of adult learning.
5. To assist participating companies in the study of management problems.

The Workshop was established seven years ago at the request of a group of



Informal group discussions make the Workshop one of the best operating today



Students formulate and analyze utility problems of special interest



Professor Livingston (foreground) meets daily with the entire group for discussion

Advisory Committee

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ERNEST R. ACKER, President
Central Hudson Gas & Electric Corp.

HARLEE BRANCH Jr., President
The Southern Company

ERROL R. DOEBLER, Chairman of Board
Long Island Lighting Company

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Atlantic City Electric Company

DANIEL J. HENNESSEY, President
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JAMES W. CARPENTER
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C. S. STACKPOLE
American Gas Association

EDWIN S. V.
Edison Electric

top-level utility executives to fill the growing need for a program to aid companies in the development of higher management. Today, its activities are still guided by an Advisory Board made up of outstanding utility executives.

The question confronting every utility president is: "Can I spare a top executive for this two-week program?" Professor Livingston maintains that the value of full-time participation in this kind of program is far more significant than that gained in intermittent programs sandwiched in among everyday business affairs. The justification of time spent at the Workshop, he says, is to be found in the increased resourcefulness of participants faced with day-to-day problems of company operation. Workshop alumni return to their companies, not with another formula for solving a cost problem or a rate case, but with an

increased ability to apply imagination and initiative to the handling of a wide variety of ever-changing situations.

A staff familiar with the most promising techniques of problem-solving as worked out in the engineering and social sciences, well trained in the organization of team studies, and armed with actual industrial management experience, will be on hand to lead the 1959 Workshop. Professor Livingston is presently consultant and was for many years director of education for the Long Island Lighting Co. He is the author of *The Engineering of Organization and Management* (1949), co-author of *You and Management* (1958), and numerous articles on the theory and practice of management.

Professor Livingston points out that no attempt will be made to teach a particular viewpoint, nor to present abso-

lute answers. There are no automatic solutions to management difficulties, he says, since good management is always dynamic and individual. Rather, the Workshop will investigate the problems, offer aids to solution in terms of new viewpoints and administrative techniques, and make the manager fully aware of the resources at his disposal through the application of certain kinds of knowledge.

Staff and visiting experts present alternatives—not absolutes—and expect the alternatives to be critically judged in the light of management experience.

The 1959 Workshop will present the method and procedure stabilized on a tried and proven basis which permits the program to concentrate on two aspects. They are:

Task 1. The Fundamental Problem: The Job of the Manager.

Task 2. The Decision Process.

The first considers the job of manager and the techniques he has available. The second task will be devoted to a consideration of one of the most crucial utility problems—the job of the manager in making decisions.

Speakers have been chosen to cover both tasks. Among those who will discuss the general subject of the job of the manager will be these distinguished leaders:

Chester S. Stackpole, managing director, American Gas Association, "The Stereotype of the Job"; Felix Wormser, St. Joseph Lead Co., "Variation of the Job"; Dr. William W. Waite, Columbia University, "Management Techniques";

Dr. Daniel E. Griffiths and Professor Livingston, Columbia University, "The Manager's Human Relations"; and a panel discussion by: Dr. Conrad M. Arensberg, Columbia University; Dr. Lyman Bryson, Dr. Irving Lorge and Dr. Goodwin Watson, all of Teachers College, Columbia University; and Dr. Walter Woodward, American Cyanamid Co.

Covering the decision process will be Fred Rudge, Fred Rudge Associates, Inc., "The Occasion for Decision"; Dr. David B. Hertz, Arthur Andersen & Co., "Communications and Information"; Dr. Melvin Salvesson, management consultant, "Planning: Risk Evaluation"; and J. Theodore Wolfe, A. G. A.

president, and president, Baltimore Gas and Electric Co., "Action: The Realization."

When nominating an executive for enrollment, it is suggested that nominees be mature and experienced men who have demonstrated their management ability, and who have shown an ability to participate in and benefit from a study project.

The fee for the program is \$1,000. This covers tuition, research and instructional materials, books, living accommodations and meals. This is payable by the sponsoring organization at the time the nominee is notified of his acceptance. Cancellations will be accepted until June 15, 1959.

Meet your Association staff



Norval D. Jennings

His World War II record is enviable. A captain in the Air Force, he holds the Distinguished Flying Cross, the Air Medal with four Oak Leaf Clusters, and a Presidential Citation.

For recreation, Norv thinks there's nothing greater than golf. A good week end player, he shoots in the high 80's. "I'm a pigeon for some of the industry's sharpshooters," he laments, "but, oh well, I can always take Ken Muldoon. . . . Well, maybe I can for another season . . . I hope!"

Norval D. (for Dwight) Jennings, director of advertising and promotion, came up through the school of hard selling. He learned aggressive salesmanship "during the depression when the boss brought out the bull-whip if volume dropped."

As the man who directs A. G. A.'s \$5 million-a-year advertising program, Norv thinks of himself as a salesman first "because advertising and promotion people are supposed to sell." He has been largely responsible for the current A. G. A. policy of ready-recognition or brand-name ads ("nothing more than hard-sell") now appearing in leading print media.

For aggressive selling, Norv firmly believes in brand-name advertising. ("You're not going to sell anybody a bag of gas.") This thinking, inspired by John W. West, Jr., assistant managing director, has resulted in the A. G. A.-manufacturer direct cooperative ad program—"a system that has doubled our ad budget."

Norv says it's easier to sell a tangible item than gas per se. Current ads proclaim such statements as "Look at this gas range . . . it's got the burner with a brain." Because the modern housewife will want this range, she also will want to use gas.

His formula for a good institutional ad: Show personalities like Bing Crosby, Julia Meade or the Fred MacMurrays in the plush atmosphere of a famous hotel or restaurant. The bold type shouts that the meal was "cooked with gas."

His early career as a salesman—he had extensive experience in domestic

sales and promotion with the Gulf Oil Corp. and Socony-Vacuum before joining A. G. A. in December 1946—steered him toward advertising as he advanced in management. He explains: "As you get into the over-all sales picture, you begin to appreciate the importance of advertising. And when you reach the over-all marketing picture, you can decide which path to follow." Norv chose advertising.

At Yale, he played varsity football and was a member of the boxing and swimming teams. He held the university's light heavyweight boxing championship. He prefers team sports that call for individual play, and has carried this preference over to the direction of his department. "We work as a team, but the team is dependent upon the individual effort of each member."

It's also a team effort at his "big, little home with lots of rooms" in Greenwich, Conn. The "clan" is headed by 20-year-old David, a member of Yale's varsity golf team. The newest star is 12-year-old Joanie who recently won her first riding show championship. His wife, Lucille, is an expert horsewoman. Rounding out the family are three more daughters, Lisa, nine; Jackson, seven; and Kate, five. "All are good swimmers and 'potential' riders."

Norv joined A. G. A. as assistant director of the New Freedom Gas Home Bureau. He has served as manager of the New Freedom Bureau, assistant advertising director, and advertising manager. He was named to his present post last June.



Hollywood's Fred MacMurray admires the new gas lamp on the lawn of his home



June loves the ease of laundering with her new RCA Whirlpool washer and

June directs kitchen production

What a mess it is to have the most important room in your home—the kitchen—torn up for eight weeks, and to try to live there at the same time.

Fred MacMurray was making films at Warner Brothers and Columbia during the time the MacMurray kitchen was being remodeled into an all-gas beauty.

The MacMurrays showed themselves to be the real troupers they are, as they took all the confusion and inconvenience in stride. June watched the wonderful transformation of her kitchen from day to day, and declares she could almost qualify as a remodeling contractor herself.

With a wonderful family like the MacMurrays and the full cooperation of a meticulous contractor, plus the fine work of all the craftsmen, remodeling the kitchen, laundry, breakfast room and service porch was a really happy experience for all involved.

Fred and June are really proud of their beautiful RCA Whirlpool all-gas kitchen, breakfast room and laundry. The cabinets are limed-oak, and the appliances and kitchen fixtures are coppertone. Counters are tiled in Gladding-McBean's special Dura-Glaze, and the entire color plan was coordinated by the Fuller Paint Co. Soft shades of blue

and yellow are beautifully blended for walls, woodwork and wallpaper accents.

The floor covering by Matico Tile Co., is a most attractive and durable pattern of vinyl tiles. The Vent-A-Hood Co. supplied the huge coppertone hood, which dominates the island arrangement where the six RCA Whirlpool gas top-burner units are installed along with a big maple chopping block.

As a final touch, a blue naugahyde breakfast nook with a swivel table was installed in one corner of the kitchen. A nutone blender, a chime clock, and a piped public address system with Hi-Fi complete the picture.



ed and June agree that everything tastes so much better when cooked with gas



ed travels quickly from freezer to gas range to table at the MacMurray home



MacMurrays' new gas appliances are arranged for convenience and time-saving



The cheerful and cozy MacMurray kitchen is a delightful family room as well



Sunshine streams through the window to give an added glow to the counter

Co-op plan nets big sales advance

*South Jersey Gas
forms 'The Big Triangle'
in unique promotion*



An appealing display adorns the company's sales show room. Window streamers, appliance back displays, and mobiles created an atmosphere that helped double national sales averages in gas ranges from September through November, as compared to the same period in 1957.

Taking up a powerful saturation sales promotion program where most cooperative advertising efforts leave off, South Jersey Gas Co. during 1958 reaped sales benefits from gas appliances as a result of one of the biggest promotions ever undertaken in South Jersey.

Working in close cooperation with gas appliance manufacturers and with appliance dealers, South Jersey Gas embarked, as the third party, on an intensive seven-point promotion, called "The Big Triangle." Only manufacturers known for their aggressive promotional efforts were selected by South Jersey Gas.

The utility, headquartered in Atlantic City, then turned to its advertising agency, Arndt, Preston, Chapin, Lamb & Keen, Philadelphia, to prepare an advertising schedule that went far beyond most cooperative programs.

For probably the first time in the gas appliance industry, a cooperative advertising schedule was drawn up in which the utility agreed to match manufacturer expenditures dollar for dollar throughout the campaign—and then to add 25 per cent cooperative allowance. In short, for every 1,000 lines of advertising contracted by a manufacturer, South Jersey Gas ran equal lineage in which the specific manufacturer's brand name and product illustration were exclusively identified. In addition, manufacturers were given a 25 per cent cooperative allowance on the space they ran.

Although sales of all gas appliances increased significantly, water heater sales alone increased 92 per cent for the utility's local dealers and plumbers during the three-month promotion in 1958 over 1957. Gas range sales in a three-month program which just ended re-

sulted in a 57 per cent increase over the same period in 1957, while the industry was up 4.2 per cent.

South Jersey Gas has long been a strong merchandising utility and is currently promoting a five-star dealer program first instituted in 1956 after a thorough market survey. For the past several years, approximately 11,000 new domestic gas appliances have been installed in the company's territory. Of these, one-third were sold by the company and the balance by appliance dealers, jobbers, distributors and manufacturers.

Basically, this hard-hitting program involved 250,000 lines of advertising—double the so-called "normal" space—for gas ranges, and 125,000 lines of space for water heaters. South Jersey Gas, appliance manufacturers and dealers shared this "Big Triangle" program which returned big dividends for all.

Backing the strong advertising schedule were five other elements in the sales-wise 1958 campaign: direct mailings to customers; powerful, continuous saturation radio advertising; billboard advertising throughout the market area; truck signs, plus giant bus signs; and a complete point of sale kit for dealers, which included a window display, an appliance back display, and mobile and hanging pennants.

The entire "Big Triangle" program

pliances made by the cooperating manufacturers; and, finally, to direct these sales actions to dealers cooperating with the utility and the manufacturers. Brand name identification, plus dealer identification, was the key to the success of the program.

The features of the South Jersey Gas Co. manufacturers' cooperating policy included: (1) cooperative advertising—expanded and consistent; (2) matching of manufacturers' advertisements, includ-

through other media to supplement the newspaper advertisements.

To emphasize the single big selling feature, and thus give common identification for all gas range manufacturers in the promotion, the utility concentrated on super matchless ranges featuring "the burner with a brain" for \$199.95. Consumer attention was thus focused on better quality gas ranges offered by seven major gas range manufacturers.



This attractive window display in the utility's street floor show room spelled out the message that sent sales for the South Jersey Gas Co.'s September-October-November 1957 gas range program soaring 57 per cent over sales recorded in the same 1957 period



Sid Friedman (l.), South Jersey Gas dealer representative, and Samuel Brown, appliance sales for Snellenburg's-Blatt, Atlantic City, discuss features of the gas range "burner with a brain"

resulted from a careful examination of the sales potential for gas appliances in the South Jersey Gas area. Aware of the fast industrial expansion in South Jersey, which in turn quickly attracted new families, the utility embarked on a program of sales and promotional leadership which used advertising as a focal point—not merely as the beginning and the end of effort.

The company realized, and its advertising agency strongly concurred, that simply to increase the advertising budget was not enough. Basic cooperation from both manufacturers and appliance dealers had to be achieved through a three-way, continuing, solid advertising and promotion program that would clearly benefit all concerned.

The objectives were, of course, these: to sell consumers on the advantages of gas and gas appliances; then, to upgrade consumers on buying specific ap-

pling brand name identification—in newspapers of the manufacturers' choice; (3) dealer listings in manufacturer advertisements; (4) and a South Jersey Gas offer of a 25 per cent cooperative allowance on all manufacturers' space.

Dealers were kept advised on all utility plans through promotional mailings. The utility provided free sales promotion material, aid in financing for the large-ticket items, salesmen's bonuses, and dealer listings in South Jersey Gas-manufacturer advertising, plus various other assists.

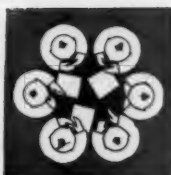
The agency played a major role in coordinating and putting into effect this powerful promotion. In special meetings, manufacturers were given full information on the plans, the potential returns for their investments, the new concept of line-for-line matching space, plus the 25 per cent cooperative allowance, and saturation advertising

A similar program, worked out by South Jersey Gas with water heater manufacturers, plumbing contractors and appliance dealers, was arranged for the water heater campaign.

Water heaters carrying a 10-year guarantee were offered for \$2.50 per month. This promotion has achieved a remarkable sales results—a 92 per cent increase over the same three-month period in 1957.

Believed to be unique in the industry, the "Big Triangle" program met market problems in the 70,000 residential-customer area served by South Jersey Gas and turned them into profits through careful advance surveys, and broad and coordinated planning.

Another result was a hard-hitting advertising-sales promotion campaign that should be only the beginning of a new sales era for gas appliance sales in the lower portion of the Garden State.



Industrial relations round-table

Prepared by
A. G. A. Personnel Committee

Edited by **W. T. Simmons**

Assistant Personnel Manager
Philadelphia Electric Co.

● **Human relations defined**—Human relations is not smiling and backslapping. Neither is it control or manipulation. It is something realistic and practical—compatible with the aim of business.

Professor Keith Davis of the University of Indiana, speaking before the New York Metropolitan Chapter of the American Society of Training Directors, believes that "the objective of good human relations is not to create one big happy family. Its objective is simply to provide an environment for the pursuit of happiness."

● **Ways to inspire workers**—Arthur L. Riche, in the August issue of *The Rotarian*, states that automation will not change the need of employees to be treated as persons. No one knows all the answers about giving working people the recognition they need and should have, but here are eight keys to help achieve that recognition for those working with you:

- (1) Train supervisors to be helpers and friends. Much employee dissatisfaction stems from unfair treatment by petty "straw bosses."
- (2) Teach supervisors that giving credit to their workers is the way to get credit for themselves.
- (3) Show employees the finished products they help to build.
- (4) Pass compliments from satisfied customers down the line to workers.
- (5) Urge friendly relations throughout your organization.
- (6) Make monthly balance sheets and operating statements public. Workers like to be on a winning team.
- (7) Hold round-table discussions to answer questions and promote suggestions.
- (8) Let each worker always know exactly where he stands.

● **Retirement in easy stages**—A new approach to job retirement, which is currently being advanced for employees of the federal government, is also receiving widespread attention in industry.

Briefly, the idea is "gradual retirement," which is a system for letting an individual taper off work as he nears retirement age.

Some officials think the idea may also be an answer to the problem of how to make use of the skills of a person past 65 who wants to keep on working, but who would like to carry a lightened job load. And, these officials add, the idea may also help to ease the problem of what to do with the aging employee who slows down at his job.

This "gradual retirement" program is being developed by the Department of Health, Education and Welfare, which runs the nation's biggest retirement program—

the Social Security system—and which has 55,000 employees of its own.

Here is the way this plan may work: An eligible individual, who is 62 or older, is retired. He is then immediately rehired for a "tapering off" work schedule. He then works a gradually decreasing proportion of time, either for a period of five years, or until he reaches 70. The government has compulsory retirement at 70 for federal employees.

Right now, the department's personnel officials are exploring five ways of tapering off work. One way is to take longer vacations each year. Another is to shorten the work week. A third calls for working a gradually shorter day. A fourth is gradually to shift responsibilities of a job to younger men. And a fifth is to transfer an aging worker to a less taxing job.

Industry has already tried some of these approaches. A study in 1955 by the National Industrial Conference Board showed that, of 327 companies, 14 had in effect some kind of tapering off program prior to retirement. At that time, the programs were limited largely to employees who sought to ease their work load because of poor health.

Since then, gradual retirement has been receiving increased attention from industry executives.

One chewing gum manufacturer has a retirement plan which permits an employee to quit work on a pension at 65. If he wants to keep working past that age, the company requires him to take off one month without pay, in addition to his regular vacation, during his 65th year. In his 66th year, he must take off two months without pay; in his 67th year, the requirement becomes three months. Meanwhile the amount which the employee is eligible to draw from the company's pension fund increases actuarially. By his 69th year, that amount, plus his Social Security benefits, becomes large enough so that he actually can get a bigger check by retiring than by working.

One life insurance company with headquarters in New York City puts an employee on a four-day work week in his final year. The idea of the shortened week, explains a company executive, is to give the individual a chance to become used to more time out of the office.

● **Court decisions**—Veteran loses Draft Act suit hoping to count Army service part of job training time—The Fifth Court of Appeals has applied the Supreme Court decision in the McKinney case to rule that an employee of the Texas and Pacific Railway Co. has no right under Section 9 of the Universal Military Training and Service Act of 1951 to have two years of military service counted in fixing the seniority date of his promotion from the status of apprentice carman.

The point on which the case turned was that promotion of the employee from carman apprentice to carman, after completion of training as an apprentice, was not automatic and not a contractual right, but rested rather on the discretion of the railway company. The period of apprenticeship is four years, but the railway does not necessarily immediately employ as carmen all of the apprentices who have successfully completed their apprenticeships.

In the McKinney case, which involved a similar claim by a veteran returning to the employ of a railway company, the Supreme Court held that the Draft Act does not guarantee the returning serviceman an exact reproduction of the civilian employment which might have been his if he had not entered the service. In that instance, the Supreme Court said:

"Much there is that might have flowed from experience, effort, or chance to which he (veteran) cannot lay claim under the statute. Section 9 (c) does not assure him that the past with all its possibilities of betterment will be recalled. Its very important but limited purpose is to assure that those changes and advancements in status that would necessarily have occurred simply by virtue of continued employment will not be denied the veteran because of his absence in the military service."

The Fifth Circuit said, in affirming the judgment which follows below:

"Certainly, the McKinney case clearly decides the question of whether a veteran after re-employment is entitled to a retroactive seniority status upon a subsequent promotion where he had only a high probability of promotion had he not been in the service. Only where the promotion or advancement is automatic can the veteran claim his right. Whether or not the automatic feature of the promotion comes from an employment contract or from 'actual practice' under a collective bargaining agreement or from another source does not concern us here since none of these was present."

This action was brought by one Jack H. Bassett. The stipulated facts are that Bassett was employed by the railroad as a carman apprentice from Aug. 14, 1948, until Feb. 8, 1952, when he left to enter the Army. Shortly after his military discharge, he was re-employed—on Feb. 15, 1954—as a carman apprentice, with seniority in that position dating from Aug. 14, 1948. He completed the course on Dec. 4, 1954, and was promoted on that date to carman. He sued to require the railway to antedate his seniority as carman to Dec. 8, 1952, contending that he would have completed the required apprenticeship on that date, had it not been for the two years spent in the Army. (Jack H. Bassett v. The Texas and Pacific Railway et al., Aug. 18, 1958.)

Martha Raye: wit without match

True to the standards of her "show must go on" profession, comedienne Martha Raye saved the day in Pittsburgh recently by shinning up a lamp post to light the city's new gas street lights.

To the vocal delight of an appreciative crowd which included city and county dignitaries and news photographers jockeying for position, Miss Raye called out from atop the pole, "Anybody got a match?"

This comical scene came as gas street lights were lit in Pittsburgh, the culmination of a two-year dream for the city's three natural gas companies. Robert T. McCrum, Equitable Gas Co.'s commercial sales supervisor, who represented the three gas companies, had been working with the lower Oliver Avenue Merchants Association and the city to get the lamps installed.

Lower Oliver Avenue is a street of exclusive stores, and customers come from all over the Tri-State area to purchase items unobtainable elsewhere. Feeling that the addition of the "Baltimore" gas lights would further dignify their street and make it ever more distinctive, the merchants gave their enthusiastic support to the project.

Newspaper stories captured the public's imagination. Letters to the editor were 100 per cent in favor of the gas lamps. The new lights would add beauty, dignity, and a peaceful atmosphere to Pittsburgh's oldest street, the letters stated.

Press conferences, meetings with the City Council and the Art Commission, engineering studies, and special promotions all went into the build-up. The city and the Art Commission agreed, and a

date for the installation was set.

Arrangements were made for Miss Raye and city officials to lead the lamp-lighting ceremony. A pretty model dressed in Victorian attire was stationed at the lamps. Police closed the street to motor vehicles as the crowd surged forward to catch a glimpse of Miss Raye.

It was the moment when the lamps

"hesitated" to light that Miss Raye came to the rescue by climbing the lamp post.

Though it is still too soon to determine whether promenading under the lower Oliver Avenue gas lamps will become a Pittsburgh custom, the consensus is that there is no more delightful shopping atmosphere than that created by the gas lamps.



Up a pole is comedienne Martha Raye at the gas street lighting ceremony in Pittsburgh recently. When the pilot light chain broke, Miss Raye, true to her "show must go on" profession, climbed the pole to the amusement of onlookers and asked "Anybody got a match?"

*More than 300 committee members meet
to outline committee programs for study in 1959*

Accountants plan for year ahead

More than 300 Accounting Section committee members met in Cincinnati to review activities of the past year and to plan for the year ahead. It was the largest attendance at an Accounting Section committee organization meeting in A. G. A. history.

J. Gordon Ross, chairman, explained changes in the A. G. A.-EEI Accounting Conference program which will be held in Chicago April 20-22.

A new format has been prepared for the spring conference. The conference will open with the general session on Monday morning, as opposed to Monday afternoon. There will be four half-day meeting sessions—two with four concurrent meetings, and two with five concurrent meetings.

At previous conferences, there have been as many as seven meetings running concurrently.

It also is planned to time scheduled presentations at each session in order to make it possible for delegates to move between the meetings as their interests dictate. The conference will close at Wednesday noon, eliminating the Wednesday afternoon meetings previously scheduled.

Mr. Ross commended coordinators and committee chairmen at the Sept. 8-9 session for the advance planning already done. The various committees held separate meetings to analyze and seek solutions to some of the problems facing the gas industry. The following programs were adopted:

Customers' Activities Group

The *Customers' Accounting Committee* will study the following:

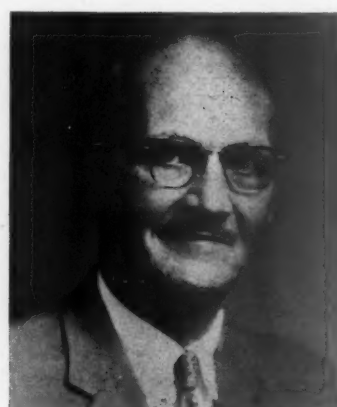


J. Gordon Ross, Rochester Gas and Electric Corp., Accounting Section chairman

1. Meter history record—why?
2. Budget billing procedures.
3. What's new in customer accounting and billing.
4. Application of electronics to customer accounting.
5. Application of meter constants and correction factors.
6. Informing the industry on trends in maintaining customer accounting records.
7. Effect on customers' activities of electronic accounting systems.
8. Automatic meter reading.

The *Customer Collections Committee* has selected the following projects:

1. Credit picture.
2. Field collections.
3. Collection agencies.
4. What price credit protection?
5. Collections are everybody's business.



Charles H. Mann, Columbia Gas System Service Corp., Section vice-chairman

6. Electronic billing—its problems and opportunities.

The *Customer Relations Committee* program will include:

1. A study of contact employee training programs.
2. Motivating contact employees to perform to the utmost of their ability.
3. Objectives of customer service groups.
4. High bills—cause, prevention and treatment.
5. Meter reading—billing and budget billing.
6. Electronic billing—its problems and opportunities.
7. Customer information—what, why, and how.
8. Articles for the A. G. A. MONTHLY and the EEI Bulletin.
9. Discussion session.

The committee also will present

"Customer Information—What, Why, and How?" at the spring conference.

At the *Customer Activities Group* meeting in Chicago, the three committees comprising the group will make a joint presentation on "Electronic Billing—Its Problems and Opportunities."

General Activities Group

The *Depreciation Accounting Committee* will continue to study:

1. Observation of progress of bills before Congress to modify or withdraw liberalized depreciation.
2. Problems of net salvage.
3. Use of electronic computers and other types of office machines for depreciation computations.
4. Court and regulatory commission decisions.
5. Atomic energy plant life.
6. Reimbursements for relocation of utility plant due to requirements of new highway or other construction.
7. Methods of accruals and depreciation computations used by companies and commissions.
8. Economic effects of liberalized depreciation.
9. Bibliography regarding accruals and depreciation reserved computations.

This committee and the *Taxation Accounting Committee* also will continue to observe the progress of bills, which may be introduced in the next session of Congress, to modify or repeal provisions with respect to liberalized depreciation.

The committee, in addition to meeting jointly with the *Plant Accounting Committee* at the spring conference, will hold a separate session to discuss problems related to depreciation.

The *General Accounting Committee* has selected these projects for study during 1959:

1. Study of 1957 annual reports.
2. New accounting developments.
3. Methods operations.
4. General accounting electronic applications in operation.
5. Overheads—expense or capital.
6. Developing accountants.
7. Preservation of vital information to permit reconstruction of records after catastrophe.
8. ABC's of productivity measurement.
9. Typical responsibility and functional accounting reports.
10. Accelerated depreciation study.

11. Reimbursement for relocation of facilities due to highway construction.

Also, continuing projects will include a study of annual reports, a survey of new accounting developments affecting utilities, and a study of overhead costs.

The *Internal Auditing Committee* will study these projects:

1. Advisory.
2. Editing.
3. Case studies.
4. Statistical.
5. Measuring.
6. Electronics.
7. Personnel.
8. Taxes.
9. Distribution operations.
10. Appliance service operations.
11. Credit and collection policies and practices.

The *Plant Accounting and Property Records Committee* will develop these subjects:

1. Evaluation of forms and work sheets used in plant accounting and property records.
2. Accounting for telemetering, supervisory control and carrier current equipment.
3. Machine accounting applications to property record problems.
4. Reimbursements from government agencies in connection with highway programs.
5. Plant accounting case studies.
6. Plant accounting forum—panel session.
7. Evaluation of reports and forms.
8. Natural gas underground storage developments.
9. Accounting for work caused by major storm damage.
10. Getting the most out of property records.
11. Machine accounting for inside plant—property records for a steam electric generating station.
12. Liberalized depreciation—today's requirements of property records.

In addition, a new, long-range project entitled "Plant Accounting Case Studies" will be inaugurated. This will provide a record of actual case histories, with solutions of plant accounting problems and discussion of results.

The *Taxation Accounting Committee* met for three days recently to discuss advertising expense, contributions in aid of construction, depreciation—its ef-



H. R. Flanagan, Philadelphia Electric Co., coordinator, Customer Activities



C. D. Otcasek, The East Ohio Gas Co., chairman of Customer Accounting



John Gibson, Michigan Consolidated Gas, chairman, Customer Collections



F. E. Kee, Oklahoma Natural Gas Co., chairman of Customer Relations



Ohmer Ullery, The Columbia Gas System, coordinator, General Activities



J. R. Gardner, Central Hudson Gas and Electric, Depreciation Accounting

A. J. Klemmer, Rochester Gas and Electric, chairman, General Accounting



J. E. Towle, Columbia Gas, chairman, Electronic Machine Development



C. J. Nichols, Baltimore Gas and Electric, chairman, Internal Auditing



H. M. Ruth, Jr., Baltimore Gas and Electric, Accounting Developments Service



John Hanna, Public Service Electric & Gas, Plant and Property Records



Emanuel Toder, Consolidated Edison, Application, Accounting Principles



R. E. Baker, American Natural Gas Service Co., Taxation Accounting



J. A. Laing, Natural Gas Pipeline Co. of America, Compendium Committee



J. E. Neilson, Brooklyn Union, chairman, Accounting Employee Relations



J. F. Daly, Long Island Lighting, chairman, Uniform System of Accounts



fect on taxable income and on rates, excise taxes, fringe benefit plans, recent court decisions, tax rulings, and legislative amendments.

The committee will meet again late this month in Kansas City, Mo.

Special Activities Group

The *Accounting Developments Service Committee* will continue to disseminate information to member companies regarding the latest in office machines and equipment. The committee will publish releases on a quarterly basis, and will supplement the releases with articles in the A. G. A. MONTHLY. Ideas and suggestions will be welcomed by the committee.

The *Committee on Uniform System of Accounts* has been active in connection with the new uniform system of accounts adopted by the NARUC at its annual convention in November. The committee expects to advise member companies of the more important changes contained in the recommended classification as soon as sufficient working copies are obtained from NARUC.

The *Electronic Accounting Machine Developments Committee* presented the sixth annual Public Utility Electronics Seminar in New York Dec. 1-3. Committee members, acting as liaisons with various manufacturers, reported on the latest developments in input, computer, and output equipment.

The *Committee on Application of Accounting Principles* is keeping abreast of developments in this field.

The *Compendium Committee* will publish a summary of all Accounting Section articles and papers published during the past several years, including those published in 1958.

The *Accounting Employee Relations Committee* will present four projects at the spring conference. They are:

1. Do unto others—the importance of good relations between employees.
2. Automation—the accounting employee relations aspect.
3. Promotion limited—does cadet training outmode promotions from within?
4. Are You Overlooking Your Women, a provocative paper on the potential use of women as supervisors.

In addition, a panel forum again will be conducted. This year, it will be entitled "Treatment of Accounting Employee Ills."

Management practices up for study



T. F. Patton, president, Republic Steel Corp., will speak at the final luncheon



A. G. A. President J. Theodore Wolfe will tell executives "What's Hot About Gas"



Otto W. Manz, Jr., Section vice-chairman, is chairman of the Arrangements Committee

Delegates to the fifth annual conference of the General Management Section can look forward to another three days of challenging ideas, rewardingly fresh concepts, and critical evaluations of some management practices.

That this promise will be fulfilled is apparent from the program of speakers and topics lined up by the Arrangements Committee, headed by Otto W. Manz, Jr., Section vice-chairman, for the meeting at the Statler Hilton in Cleveland, March 2-4. The wide range of topics, which includes gas industry financing, labor relations, organizational policies, control of overhead costs, and the economic outlook, reflects the broad interests of the Section membership.

The opening speaker will be Frank C. Smith, chairman of the board, Houston Natural Gas Corp., a former A. G. A. president and a gas industry leader for many years. Mr. Smith will draw upon his wide experience to discuss some problems confronting the gas industry and to suggest their possible solutions. He plans to acquaint his audience with some of the unique potentials of our industry and to point out the comparative status of the gas industry in America and in Europe.

J. Theodore Wolfe, A. G. A. president and president, Baltimore Gas and Electric Co., will address the Monday luncheon meeting on the current situation in the gas industry. A forceful and entertaining speaker, Mr. Wolfe has chosen the title "What's Hot About Gas?" and will cover topics of timely interest.

The concluding general session luncheon on Wednesday will be addressed by T. F. Patton, president of Republic Steel Corp.

As president of the nation's third largest steel producing company, Mr. Patton is one of our country's leading industrialists and is a recognized spokesman for American business.

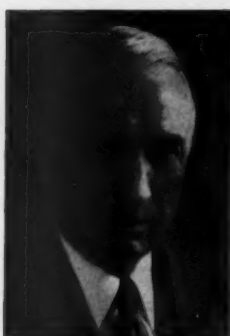
The second general session speaker for Monday morning is Donald M. Graham, vice-president, Continental Illinois National Bank and Trust Co. of Chicago, who will speak on the role of the commercial banker in financing gas utilities. Mr. Graham is in charge of the utilities group for his company and handles all classes of public utility company loans, and oil and gas production loans. He will discuss short term financing for construction and working capital, revolving credit arrangements,

financing of field purchases of gas by distributing the companies, and the acquisition of reserves and gas in place.

The long, hard fight to control overhead costs will be the topic of Richard F. Neuschel, a principal of McKinsey and Company, Inc., management consultants. Mr. Neuschel specializes in organization, management controls, and systems and procedure studies. He will point out the savings potential in a program of overhead cost control and discuss how to overcome some of the obstacles that stand in the way of achieving these savings.

"Organization: Its Uses and Abuses" will be the title of the second Tuesday morning speaker, Dr. Ernest Dale, associate professor of economics and business administration at the Graduate School of Business of Cornell University. Dr. Dale, who has been a member of the faculties of Yale, Columbia and New York University, is also president of Ernest Dale Associates, business and organization counselors, and is a noted authority in the field of business organization. He is the author of a number of books, monographs and articles dealing with general management and market-ing problems.

General session speakers



Frank C. Smith will be session's first speaker



Dr. Ernest Dale is the second speaker Tuesday



J. D. Wilson will talk on the economic outlook



R. F. Neuschel will offer a cost control plan

His book, *Planning and Developing a Company Organizational Structure*, has sold over 35,000 copies.

On Wednesday, March 4, a critical evaluation of present labor relations practices, with emphasis on the tendency of management to let its prerogatives to manage slip out of its hands, will be presented by Lee C. Shaw, a partner in the Chicago law firm of Seyfarth, Shaw, Fairweather and Geraldson. Mr. Shaw has had broad experience in this field and has a well known gas company among his clients.

The concluding general session speaker will be John Wilson, vice-president, Chase Manhattan Bank, who will review the economic outlook. Mr. Wilson will discuss the economic picture in terms of its effect on the immediate and long-term future of the gas industry.

Delegates attending the conference will have a choice on Tuesday of attending one of three luncheons sponsored by various Section committees. The Personnel Committee has conducted an inquiry into gas company practices and opinions in the field of management development. The results of this inquiry, which seeks to point up failures as well as successes, will be reported by Dwight S. Sargent, personnel director, Consolidated Edison Co. of New York, Inc. Mr. Sargent, who has been engaged in personnel work with Consolidated Edison and its predecessor companies since 1922, has written and spoken on many aspects of personnel administration.

This luncheon meeting will be followed by a panel discussion moderated by Mr. Sargent. Representatives of two gas companies, one which has just initiated

a full-fledged management development program and another which has conducted for many years what is generally considered a model program, will briefly outline their companies' objectives and methods. Other panel participants and the audience will join in discussing the many—and often controversial—ideas and practices that comprise the broad subject of management development.

Donald J. Miller, vice-president-gas operations, Public Service Co. of Colorado, will be the speaker at a second Tuesday luncheon sponsored by the Accident Prevention, Insurance, and Claims Agents Committees. Mr. Miller plans to go beyond the usual confines of employee safety; he will also discuss safety in regard to public liability and the need to control and prevent damages caused by "foreign" contractors. Mr. Miller will also discuss the inter-relations in a typical gas company of the insurance, claims and safety departments.

The Purchasing and Stores Committee will also sponsor a Tuesday luncheon meeting.

Donald H. Lyons, director of purchasing, Johns Manville Corp., will discuss "Creative purchasing in a rapidly changing economy." Mr. Lyons is a former president of the Purchasing Agents Association of New York and has written and spoken frequently on purchasing subjects.

The Purchasing and Stores Committee will conduct its own annual workshop on Monday and Tuesday afternoons. The first afternoon will be devoted to committee reports and discussions of interest to gas company purchasing and stores people. An innovation on Tuesday afternoon will be a round-table discussion where specific questions and problems will be discussed by the round-table leaders and the participants.

As is the practice at the conference, the afternoon sessions are devoted to open committee meetings. On Monday afternoon the Financial Management Committee plans an open program with speakers invited from the financial community. Other committees will hold business meetings which are open to all

(Continued on page 27)



D. J. Miller will talk at the safety luncheon



D. H. Lyons will speak at purchasing luncheon



D. S. Sargent discusses development program

Luncheon speakers ►

Gas stars at glass conference

Another milestone was reached last month when the Glass and Ceramics Committee of the Industrial and Commercial Gas Section secured one-third of the program of the 19th Conference On Glass Problems.

At this national meeting, held at Ohio State University in Columbus on Dec. 4-5, some 350 delegates from the glass and ceramics industry met to discuss pertinent problems in their respective industries. One entire afternoon was allotted to the gas industry to discuss various applications of gas for the processing of glass and ceramics. This is the first time the gas industry had been invited to participate in a conference of this type.

It has been the aim of the Industrial and Commercial Gas Section to align itself with industry meetings to promote a meeting of minds on gas utilization on an industry-wide basis. This conference was a result of the efforts of the Glass and Ceramics Committee and, in particular, of its chairman, Richard L. Lang, district industrial sales manager, The Ohio Fuel Gas Co., who secured the cooperation of Dr. H. H. Blau, conference program chairman, vice-president of Federal Glass Co., Columbus, and professor of ceramic engi-

neering at Ohio State. The physical arrangements for the meeting were made with the cooperation of J. D. Everhart, chairman, department of ceramic engineering at Ohio State.

Opening the afternoon session, John Puckett, Leeds and Northrup Co., Philadelphia, discussed "Temperature Measurement and Control." Mr. Puckett pointed out the benefits derived from consistently maintaining combustible conditions in the glass tank. He gave brief definitions for combustibles and explained simple combustible conditions.

"Air-Gas Mixing Equipment" was graphically presented by Arthur D. Wilcox, vice-president, Eclipse Fuel Engineering Co., Rockford, Ill. Mr. Wilcox described different types of burners and how gas and air are mixed to secure a combustible mixture. The mixing system includes gas jet mixers, air jet mixers, and mechanical mixers. He told of proportioning devices designed to secure various air and gas combinations for the different types of burners and desired flame characteristics.

Dr. Rex T. Ellington, assistant research director, Institute of Gas Technology, Chicago, spoke on the "Interchangeability of Gases." He described the chemistry of gases and pointed out

how various gases and combinations of gases react differently and what users should do to secure similar end results when required to change from one gas to another.

"The Use of Gas Infra-red in the Glass Industry" was the topic of William R. Van Ittersum, John J. Fannon Products Co., Detroit. He told how this new concept in gas firing could be applied to many glass firing applications in the lower temperature ranges. Mr. Van Ittersum also gave several examples of how infra-red applications could reduce processing time as much as 50 per cent.

Robert C. Le May, contract sales, research and engineering, Selas Corp. of America, said that through research and practical application it has been possible to "Increase Production of Annealing Lehrs." By relocating burners and forming a sort of pattern heating effect, temperatures throughout the lehr could be made uniform, resulting in a possible increase of speed of the ware, and, in any event, temperature uniformity would provide the basis for increased production.

Some 30 industrial gas men attended the conference and laid the groundwork for closer cooperation between the industries.

Management

(Continued from page 26)

delegates who may be interested in hearing committee reports and observing Association committee work in action.

Among the committees planning to meet on the afternoons of Monday and Tuesday are the Accident Prevention Committee, the Committee on Comparison of Competitive Services, the Insurance Committee, and the Personnel Committee. The Rate Committee plans to meet on Sunday, March 1, while the Claims Agents Subcommittee will meet on the afternoon of March 4 and on Thursday, March 5.

The conference will capitalize on the location of its meeting in Cleveland by

touring the A. G. A. Laboratories on Wednesday afternoon, March 4. The Laboratories staff is preparing a demonstration of the Laboratories' function for the delegates.

Entertainment for the delegates' ladies is being arranged for Tuesday afternoon. A social reception will be held at the hotel Monday between 6 and 7 p.m.

The Arrangements Committee in charge of the conference consists of Mr. Manz, chairman, Consolidated Edison Co. of New York, Inc.; Linn B. Bowman, Rochester Gas & Electric Corp.; A. H. Cannon, Transcontinental Gas Pipe Line Corp.; Walter Caine, Texas Eastern Transmission Corp.; John Carson, The East Ohio Gas Co.; Gordon C. Griswold, The Brooklyn Union Gas

Co.; and W. B. Tippy, Commonwealth Services, Inc. Marvin Chandler, Northern Illinois Gas Co., will preside as Section chairman.

Delegates planning to attend the conference are urged to make their hotel reservations promptly. Please address Front Office Manager, The Statler Hilton, Cleveland 1, Ohio. Mention the A. G. A. General Management Section Conference.

It would be helpful in completing arrangements for the ladies' entertainment if those delegates to be accompanied by their wives would so indicate in making their reservations or by informing the Secretary, General Management Section, A. G. A. Headquarters, 420 Lexington Avenue, New York 17, N. Y.

*How to use electronic digital computers
in calculating gas supercompressibility factors*

Calculating supercompressibility

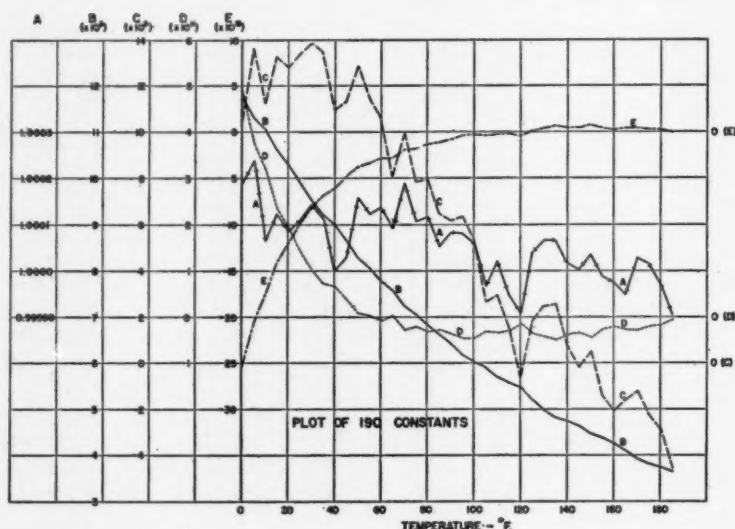


Fig. 1

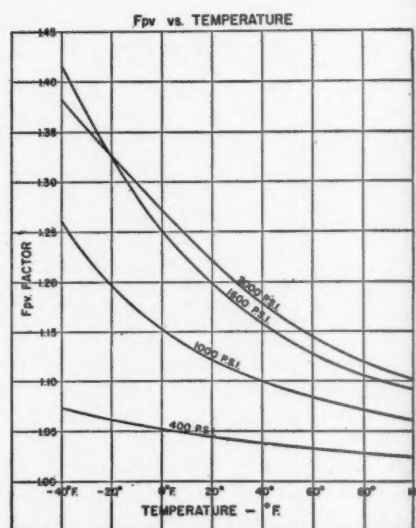


Fig. 2

By **F. M. PARTRIDGE**
and **E. E. BROUGH**
Pacific Northwest Pipeline Corp.
and **F. W. CAGLE, JR.**
Department of Chemistry
University of Utah

A brief definition of supercompressibility would be in order for those who are not familiar with this term. Those who studied high school physics may recall Boyle's Law which simply states that when pressure is applied to a perfect gas, the volume decreases proportionally. For actual gases the volume will decrease more than this amount because as the gas molecules

get closer together there is an attraction set up between them which will create more force to bring them even closer together.

Let us assume a container which has a volume of 100 cubic feet under standard conditions of 14.73 Psia and 60°F. It would have a capacity of 100 cubic feet of natural gas under these conditions. According to Boyle's Law if we increase the pressure in this container to 100 pounds per square inch absolute while maintaining the temperature at 60°F., the volume of gas in the container would be $100 \times \frac{100}{14.73}$ or 678.9 cubic feet. Actually it has been found by experiment that it would require 1.3 per cent more than

this or 687.7 cubic feet of gas to bring the pressure up to the 100 pounds per square inch. This effect increases as the pressure increases.

At 500 pounds, according to Boyle's Law, the container would hold 3,394 cubic feet of natural gas. Actually it would require 8.2 per cent more than this or 3,672 cubic feet to bring the pressure up to 500 Psia. This effect has been variously called supercompressibility, superexpansibility or probably more accurately "deviation from Boyle's Law."

Measurement by orifice meter is affected as the square root of this deviation. The square root factor used is called the supercompressibility factor and is usually designated F_{pv} .

For accurate gas measurement it is necessary to correct for the deviation of gases from the ideal gas equation, $PV = RT$ (per mole). Real gases are usually represented by $PV = ZRT$, in which $Z = f(P, T)$ and is called the compressibility factor. This is obtained experimentally and one then requires some method to reproduce the experimental data as conveniently as possible. In actual measurement the quantity $\sqrt{P_1 V / P V}$ called the supercompressibility factor (F_{pv}), is employed. It should be noted that the factor $P_1 V$ is the product of P and V at one atmosphere or 14.73 Psia. One then inquires in what way may the experimental data for $P_1 V$, at different temperatures, be reproduced for a given gas or gas mixture.

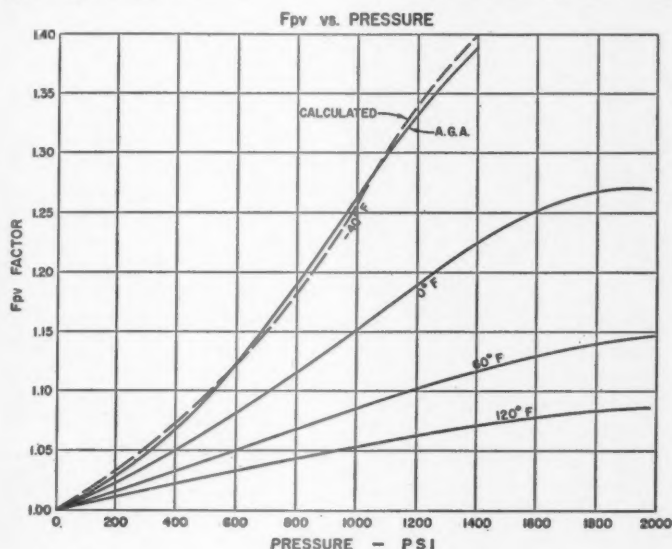


Fig. 3

The simplest and at the same time the most accurate method for the evaluation of F_{pv} would be the storage of experimental values at each value of P and T for the actual gas mixture in question or for a representative gas mixture relatively closely related to the one in question. In practice this method is not useful since it requires an impractically large memory if the calculations are to be done by modern high speed computing equipment. This is in fact the method used for hand computation in which table look-up is employed. Aside from the time required in hand calculation of gas measurement problems, the element of human error suggests that computational methods should be carefully in-

vestigated.

If a suitable method can be found for the calculation of PV , it is apparent that the problem of obtaining F_{pv} has been solved. One approach to the problem is the search for an equation of state. Such practical equations seem to date from the work of Hirn (1863) who suggested that one could use $P(V - b) = RT$. In this equation b is a term which corrects V for the finite size of the gas molecules. Better known is the equation of van der Waals, $(P + a/V^2)(V - b) = RT$, which was published in 1873. In fact, a list of 56 equations of state may be found in Partington and Shilling.

This list is by no means complete but indicates the difficulty inherent in adjusting the parameters of an equa-

ture. Actually the results obtained were expressed in the form:

$$F_{pv} = A + BP + CP^2 + DP^3 + EP^4 \quad (2)$$

The measured values of P and T for the flowing gas must be corrected for composition before entering Table No. 16A in A. G. A. Gas Measurement Committee Report No. 3. The corrections are for specific gravity (composition), nitrogen and carbon dioxide content. This correction is made by the method described by Zimmerman, Beitler and Darrow.

The adjusted temperature and pressure are calculated from:

$$T_{adj.} = T_f \left(\frac{359.46}{\theta} \right) \quad (3)$$

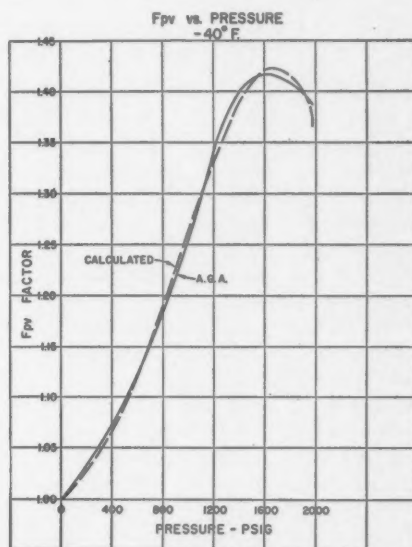


Fig. 4

$$P_{adj.} = P_f \left(\frac{671.4}{\pi} \right) \quad (4)$$

in which θ and π are:

$$\theta = 157.50 + 336.60G - 158.85X_c - 267.02X_n$$

$$\pi = 690.0 - 31.0G + 429.1X_c - 168.0X_n$$

where

G = Specific Gravity of Gas, Pure Dry Air = 1

X_c = Mole Fraction of CO_2

X_n = Mole Fraction of N_2

T_f = Flowing Temperature

P_f = Flowing Pressure

in which $a, b, c, d \dots$ are functions of the gas chosen and of the tempera-

For the expression F_{pv} , values were taken from A. G. A. Gas Measurement

DIFFERENCE IN F_{pv} Vs. TEMPERATURE

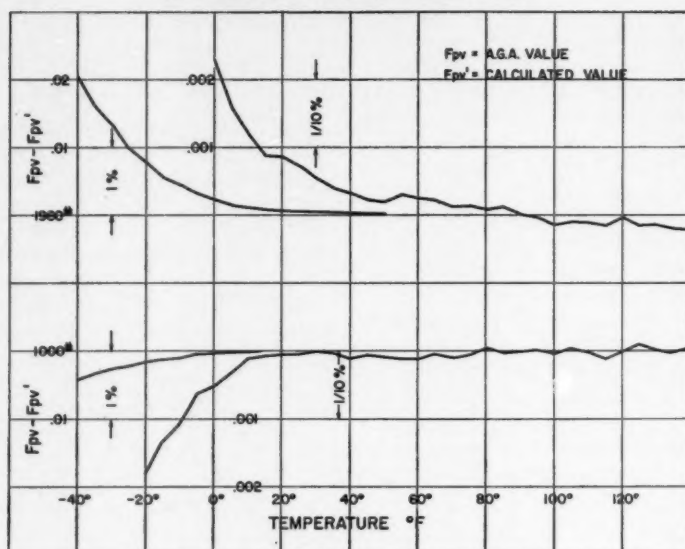


Fig. 5

Committee Report No. 3 for P from 0 to 2000 Psig. and for T from -40° to 185°F . (420° to 645°F . absolute) for every five degrees. After this calculation, one has 46 sets of five constants or 230 constants. The value of these was determined from the data given in Report No. 3 by the method of least squares. I.B.M. 650 subroutine 6.0006, developed by M. A. Kelly and M. S. Dyrkack, was used to obtain the best values of A, B, C, D and E at each temperature. These are shown in Table II. The two-digit prefix indicates the decimal point location. That is, 50 indicates that there would be one digit to the left of the decimal; 51 indicates two digits to the left of the decimal, etc. Negative signs are to the right of the given values.

A second least squares approximation was then used to evaluate:

$$\begin{aligned} A &= a_0 + a_1T + a_2T^2 + \dots (5) \\ B &= b_0 + b_1T + b_2T^2 + \dots \\ \text{Etc.} \end{aligned}$$

It was found, however, that the evaluation of A, B, C, etc. from the sets of equations and then the substitution into the F_{pv} equation did not give the required accuracy. This difficulty is illustrated in Figure 1. It will be noted that the curves A and C vs. T are not smooth. Thus it is not practical to express these in terms of $C = c_0 + c_1T + c_2T^2 + \dots$. Therefore it was decided to obtain A, B, C, D, and E by interpolation in the table between the five degree intervals. This will give the same degree of approxi-

mation now available from tabular interpolation.

The method of least squares proceeds as follows. The F_{pv} equation may be written:

$$A + BP + CP^2 + DP^3 + EP^4 - F_{pv} = 0 (6)$$

but if one places the measured value F_{pv} in this equation, in general there will be a slight residual or error, v , in the form:

$$A + BP + CP^2 + DP^3 + EP^4 - F_{pv} = v (7)$$

The values of A, B, C, D and E are then obtained in such a way as to make the summation of the v^2 for each temperature a minimum. The use of v^2 renders positive each term in the sum.

If one stores values for A, B, C, D and E from:

$$F_{pv} = A + BP + CP^2 + DP^3 + EP^4 (2)$$

for each value of T, it is then possible to interpolate intermediate values of A, B, C, D and E. It is the current plan to do linear interpolation since this corresponds to the practice suggested in Report No. 3. It should be noted that this interpolation proceeds by the calculation of F_{pv} just above and just below the temperature in question. These will vary by 5°F .

Now if T_{adj} is the adjusted temperature and T is that just above it in the table, we may calculate $F_{pv}(T_{adj})$ from:

$$\begin{aligned} F_{pv}(T_{adj}) &= F_{pv(T)} - \\ &[F_{pv(T)} - F_{pv(T-5)}] \frac{(T - T_{adj})}{5} (8) \end{aligned}$$

within the accuracy of linear interpola-

TABLE I
COMPARISON OF SUPERCOMPRESSIBILITY FACTORS

Supercompressibility Factor By:	PRESS. PSIG	PSIG (adj)	185.3	385.3	585.3	785.3	985.3	1235.0	1485.0	1735.0	1985.0
	T°F.	T _{adj} °F.	184.9	384.5	584.1	783.6	983.2	1232.0	1482.0	1731.0	1981.0
Olds, Reamer, Sage and Lacey	130°F.	156°F.	1.0079	1.0162	1.0242	1.0318	1.0388	1.0466	1.0532	1.0587	1.0625
A. G. A.			1.0079	1.0164	1.0243	1.0319	1.0389	1.0467	1.0534	1.0588	1.0627
Calculated Equ. (2)			1.0079	1.0163	1.0243	1.0319	1.0389	1.0467	1.0533	1.0587	1.0628
Olds, Reamer, Sage and Lacey	100°F.	125°F.	1.0096	1.0200	1.0301	1.0400	1.0490	1.0597	1.0688	1.0765	1.0821
A. G. A.			1.0096	1.0200	1.0301	1.0400	1.0493	1.0598	1.0691	1.0768	1.0823
Calculated Equ. (2)			1.0096	1.0200	1.0301	1.0399	1.0492	1.0598	1.0691	1.0767	1.0824
Olds, Reamer, Sage and Lacey	70°F.	94°F.	1.0119	1.0249	1.0381	1.0510	1.0636	1.0784	1.0915	1.1018	1.1086
A. G. A.			1.0118	1.0248	1.0377	1.0506	1.0629	1.0774	1.0900	1.1004	1.1077
Calculated Equ. (2)			1.0117	1.0247	1.0377	1.0505	1.0629	1.0772	1.0899	1.1003	1.1077

tion. Should it be desirable to obtain higher accuracy, it would be possible to use the Gregory-Newton or Lagrange interpolation formulae.

It is, however, desirable to observe that there is little point in employing interpolation formulae unless the accuracy of the tabular data can be shown to warrant this refinement. Spurious accuracy calculated by formula from data whose errors are uncertain can never be justified on a scientific basis, and it is far more honest to add dummy zeros, if necessary for accounting purposes, than to calculate figures without significance and so misrepresent the accuracy with which the data are known.

It is intended to calculate an F_{pv} Table from the PV values of methane given by Michels and Nederbragt and compare this with the F_{pv} data from Report No. 3. The data of Olds, Reamer, Sage and Lacey provide a check for a limited region of the report. These calculated F_{pv} values are compared with the interpolated values from the report in Table I. The adjusted temperatures and pressures, since the specific gravity of methane is 0.5537 while Report No. 3 is for gas of specific gravity of 0.600, are made as indicated by Zimmerman, Beitler and Darrow.

Values of A, B, C, D and E for equation (2) have been calculated for each degree of temperature between -40°F . and 185°F . These were obtained by linear interpolation from Table II. With these values it is possible to evaluate equation (2) using an I.B.M. 604 computer. This simply requires that the detail cards be arranged by temperature and that the proper master card containing A, B, C, D and E values for the temperature in question be inserted before the corresponding detail cards.

The accuracy is limited only by half adjustments and gives values different from those obtained from the I.B.M. 650 evaluation by an amount of ± 0.0002 or less. In fact the data used on the I.B.M. 650 can be easily adjusted so that the answer will be identical for accounting purposes. Variations, so introduced, will be within the limit of probable experimental accuracy of the data.

This calculation can be programmed for any electronic digital computer.

It may be of interest to illustrate the

(Continued on page 35)

DIFFERENCE IN F_{pv} Vs. PRESSURE

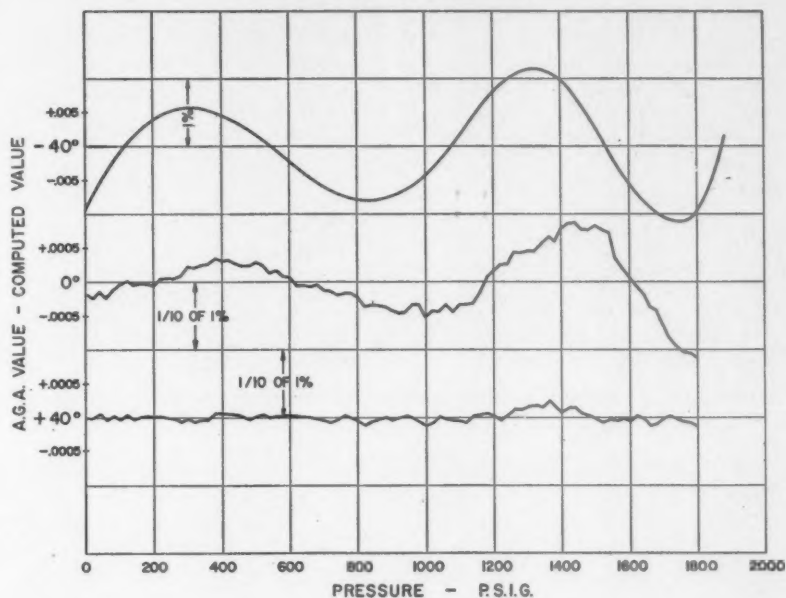


Fig. 6

TABLE II

T	A	B	C	D	E
40—	50 10092831	45 49263430	43 25037349	38 27404900	36 48381582—
35—	50 10063903	45 80308760	43 16104101	39 47549350	36 52736623—
30—	50 10043447	45 99543400	43 10428221	39 69058450	36 52229655—
25—	50 10030024	46 11133372	42 65987200	39 78714910	36 49564392—
20—	50 10018950	46 11928706	42 38235160	39 81837627	36 45834895—
15—	50 10011096	46 12312482	42 20986360	39 78859423	36 41195488—
10—	50 10005065	46 12456172	41 99582500	39 73176871	36 36499877—
5—	50 10002945	46 12202013	41 80736400	39 62236840	36 30991818—
0	50 10001910	46 11806286	42 10494390	39 49022669	36 25204076—
5	50 10002385	46 11323284	42 13621130	39 37832974	36 20580839—
10	50 10000669	46 11082696	42 11254866	39 31963693	36 17496337—
15	50 10001224	46 10630084	42 13287965	39 23937109	36 14157553—
20	50 10000865	46 10285829	42 12817771	39 19272357	36 11982510—
25	50 10001109	45 98974803	42 13401731	39 14512769	35 99417861—
30	50 10001438	45 95174660	42 13888904	39 10389406	35 81827960—
35	50 10001139	45 92057320	42 13460636	38 74392460	35 68258296—
40	50 10000012	45 89988688	42 10968818	38 65362980	35 60668498—
45	50 10000314	45 86622691	42 11339058	38 38200610	35 49314286—
50	50 10001598	45 82622019	42 12866538	37 79121900	35 38286216—
55	50 10001218	45 80268937	42 11424529	37 18348100	35 33554111—
60	50 10001381	45 77561182	42 10700192	37 65641600—	35 28830492—
65	50 10000922	45 75776706	41 80834130	35 18500000	35 27733181—
70	50 10001877	45 72258318	41 99684727	38 26039434—	35 18964050—
75	50 10001085	45 70598355	41 78544502	38 20748495—	35 17970517—
80	50 10001167	45 68085094	41 79283942	38 31465560—	35 13187524—
85	50 10000532	45 66313497	41 64963884	38 29541031—	35 11521510—
90	50 10000844	45 64150382	41 61595788	38 35620060—	34 79440343—
95	50 10000806	45 61927656	41 63197760	38 45955236—	34 32340124—
100	50 10000593	45 60174467	41 53698336	38 45893519—	34 14186963—
105	49 99996749	45 59265511	41 26851600	38 30626964—	34 38695843—
110	50 10000194	45 56982390	41 29150158	38 34875948—	34 21316038—
115	49 99994709	45 55724243	41 15805531	38 30353768—	34 19196022—
120	49 99990508	45 54746103	40 65833990—	38 15818458—	34 18142734—
125	50 10000395	45 51798660	41 17499658	38 37014077—	34 11339490—
130	50 10000644	45 49722448	41 24240042	38 44811832—	34 34556775—
135	50 10000646	45 48147809	41 25054965	38 49884253—	34 59275419—
140	50 10000160	45 47365844	40 77309210	38 40042728—	34 42768042—
145	50 10000053	45 46319768	40 19023460—	38 36544796—	34 42670008—
150	50 10000339	45 44586406	40 47551080	38 44679048—	34 69987910—
155	49 99998864	45 43798626	41 14552855—	38 28460517—	34 28420692—
160	49 99997363	45 42518034	41 20940394—	38 22813021—	34 14825220—
165	49 99994776	45 40962380	41 16280249—	38 27609069—	34 30432456—
170	50 10000265	45 39250317	41 12419936—	38 29755255—	34 35846985—
175	50 10000147	45 38238532	41 22578602—	38 21807450—	34 19046027—
180	49 99997071	45 37275921	41 29034155—	38 19077720—	34 20416157—
185	49 99990095	45 36685457	41 45934666—	37 54145019—	34 12405734—

Cincinnati Gas and Electric joins with the "Cincinnati Enquirer" to demonstrate the uses of gas

First all-gas home in Cincinnati



Ann Holiday, representative of Cincinnati Gas and Electric Co., stops in front of the Blue Flame Home to look at the traffic cones, each of which is painted blue to match the gas flame emblem at its apex

Cincinnati's first all-gas home, utilizing gas ranging from outdoor lighting to Blue Flame wallpaper, has demonstrated to thousands of visitors the advantages of gas and the myriad of duties it performs.

Co-sponsored by the Cincinnati Gas and Electric Co. and the *Cincinnati Enquirer*, the home is located in the city's exclusive Country Hills section and was open to visitors for several weeks recently.

A colorful eight-page newspaper section sent the Blue Flame home off to a flying start. Presented were pictures of

the home's features, 23 articles describing the home, additional information on the many gas features, and advertisements of companies participating in the building and furnishing of the home.

Designed by Scholtz Homes, Inc., and built by R. B. Witte and Son, the rambling Cape Cod has a white exterior with blue trim; interior decorations in the early American style give the home an air of charm and grace.

The home uses gas for a multitude of household duties. There's a range, refrigerator, dryer, incinerator, water heater, and complete year-round air con-

ditioner. Outdoor gas lighting adds still another touch of traditional charm.

Blue Flame wallpaper, illustrating the Blue Flame emblem in blue and white on a background of sand-yellow, is used on the entire right wall in the hallway.

The kitchen is a homemaker's dream. Here, the colonial styling blends perfectly with the newest automatic RCA Whirlpool gas appliances. Hot water for all household needs is supplied by the gas hot water heater in the basement. Other basement features are the incinerator and the year-round Arkla gas air

th
as

ti



The model home's smokeless-odorless gas incinerator attracts Miss Holiday's attention



Miss Holiday admires the outdoor gas light which brightens the lawn of the all-gas home



A flame-shaped mannequin welcomes Miss Holiday "to easy living" as she enters the home



The Blue Flame Home "speaks for itself" to Miss Holiday via a 30-second recording which points out the features of the home



Miss Holiday inspects the washer and dryer, located side by side in the model home's kitchen. An explanatory sign is affixed to each of the gas appliances

conditioner.

Also featured are a large living room, and three bedrooms, one of which can be used as a playroom or den.

Many unusual features were used to promote the home. Almost 100 directional signs were affixed to utility poles in the general area of the home. Arrows pointing the way were done in "Day-Glo," to give bright directions.

A colorful sign—red and blue lettering on a white background, double-faced and angled to be seen from both north and south—greeted visitors as they turned into the parking area.

The driveway was dressed with 10 colorful traffic cones, painted blue and topped with eight-inch circles featuring the Blue Flame emblem. Plastic rope with blue and white pennants connected the traffic cones.

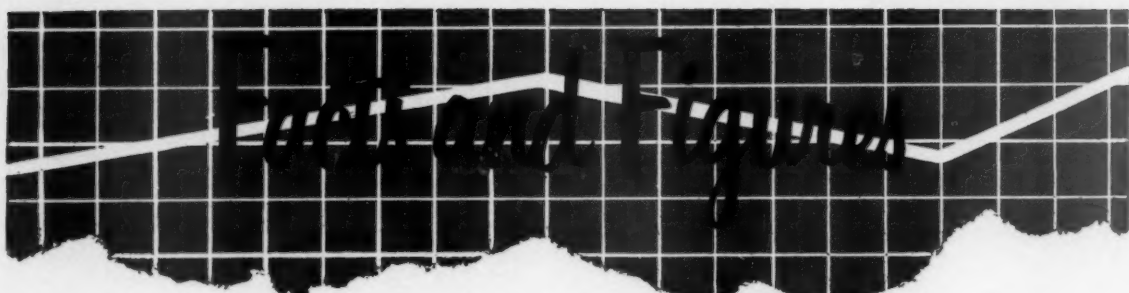
A plastic sign on the gas light pole at the end of the driveway proclaimed that "gas lights the way," and a small gas flame mannequin at the door held a sign which said "welcome to easy living."

On the wall to the right of the door was a square box encasing a "message repeater." The box was topped by a blue flame on which were the words: "The

Blue Flame home speaks for itself" and "Please push button." When the button was pushed, a voice gave a quick 30-second pitch on what to see in the home.

All the gas features were pointed up with small, attractive signs. Small directional signs, also featuring the Blue Flame motif, were used throughout the home to maintain the proper flow of traffic.

The big two-car garage also dramatizes gas. In one corner of the garage is the gas meter, painted a bright blue to fit in with the rest of the model home's color scheme.



Prepared by A. G. A. Bureau of Statistics

Gas utility and pipeline construction expenditures during the third quarter of 1958 were \$552 million, up 37.3 per cent over the previous quarter and 8.4 per cent over the comparable quarter in 1957. Preliminary estimates of construction expenditures in the fourth quarter of this year are budgeted in the amount of \$572 million, a record high for any quarter. Total 1958 construction expenditures are anticipated to be \$1,810 million.

Total operating revenues of the gas utility and pipeline industry reached another new all-time peak of \$6,946 million in the 12 months ended Sept. 30, 1958, an increase of 12.8 per cent over the same period of 1957. Operating expenses rose \$527 million, up 12.7 per cent over the previous year, to a total of \$4,692 million. Net income spurted to a 16.9 per cent gain, aggregating \$706 million. Total taxes of \$877 million representing 12.6 per cent of total operating revenues was 12.6 per cent higher than taxes paid a year ago.

Housing starts during November totaled 102,000, a gain of 30.2 per cent over November 1957. The seasonally adjusted annual rate of private home starts increased to 1,330,000. This was the highest since June 1955. There were 1,103,700 public and private units started in the first 11 months of the year, topping the 978,500 during the corresponding period of 1957 by 125,200.

Shipments of major gas appliances during November registered impressive gains over the same month a year ago. Gas range shipments were up 13.4 per cent, gas water heater shipments up 15.7 per cent and gas-fired central heating equipment up 27.0 per cent.

Gas dryer shipments during October, the latest month for which these data are available, set a record of 65,270 units, up 7.5 per cent over October 1957. Shipments of electric dryers in this same

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING NOVEMBER

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

	November		October		First 10 Months of 1958	
	Units	Per Cent Change	Units	Per Cent Change	Units	Per Cent Change
RANGES (including built-ins)						
Gas	174,900	+13.4	211,900	+ 8.4	1,544,600	— 8.0
Electric	n.a.	n.a.	135,500	+12.5	1,081,200	— 4.7
WATER HEATER^c						
Gas	200,800	+15.7	259,400	+10.5	2,262,500	+ 3.5
Electric	n.a.	n.a.	76,400	— 3.8	688,200	+ 3.3
GAS HEATING—Total	106,400	+27.0	146,600	+19.6	939,100	+12.1
Furnaces	86,500	+40.9	107,000	+28.6	702,600	+16.5
Boilers	10,000	+14.9	18,100	+23.1	105,000	+14.9
Conversion Burners	9,900	—27.7	21,500	—13.0	131,500	— 8.0
OIL-FIRED BURNER INSTALLATIONS	47,252	— 3.7	73,090	—13.4	437,467	—11.9
DRYERS						
Gas	n.a.	n.a.	65,270	+ 7.5	287,210	— 8.3
Electric	n.a.	n.a.	115,130	— 9.2	623,820	—10.9

Source: Gas Appliance Manufacturer's Association, National Electrical Manufacturer's Association "Fuel Oil and Oil Heat" and American Home Laundry Manufacturer's Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING OCTOBER

(MILLIONS OF THERMS)

Month of October	1958	1957	Per Cent Change
All types of Gas	5,523.3	5,416.4	+2.0
Natural Gas	5,393.2	5,278.1	+2.2
Other Gases	130.1	138.3	—5.9
Twelve Months Ended October 31			
All types of Gas	79,173.4	75,674.4	+4.6
Natural Gas	76,772.9	73,382.9	+4.6
Other Gases	2,400.5	2,291.5	+4.6
October Index of Monthly Utility Gas Sales (1947-49 = 100)	232.6	228.1	+2.0

PERTINENT BUSINESS INDICATORS, OCTOBER

(WITH PER CENT CHANGES FROM CORRESPONDING PERIOD OF THE PRIOR YEAR)

	October			September		
	1958	1957	Per Cent Change	1958	1957	Per Cent Change
Industrial activity (1947-49 = 100)	138	142	— 2.8	137	144	— 4.9
Consumer prices (1947-49 = 100)	123.7	121.1	+ 2.1	123.7	121.1	+ 2.1
Housing starts, Non-farm (thousands)	111.0	97.0	+14.4	118.0	91.9	+28.4
New private constr. expenditures (\$ million)	3,196	3,143	+ 1.7	3,229	3,185	+ 1.4
Construction costs (1947-49 = 100)	170.9	162.8	+ 5.0	171.1	162.7	+ 5.2

period were off 9.2 per cent to 115,130 units.

Total sales of the gas utility and pipeline industry to ultimate consumers during October 1958 amounted to 5,523 million therms, an increase of 2.0 per cent over sales of 5,416 million therms in October of last year. This increase in total gas sales is primarily due to the increased usage of gas by industrial consumers which more than offset the moderate declines in residential and commercial sales due to the warmer weather experienced during the current month.

Sales of gas for industrial use increased from 3,556 million therms to 3,715 million therms, a 4.5 per cent increase over last year. Industrial production, as measured by the Federal Reserve Board index, was down 2.8 per cent from October 1957. The index of industrial production (1947-1949 = 100) for October 1958 was 138, four points less than the index of 142 for October

GAS INDUSTRY INCOME STATEMENT (MILLIONS OF DOLLARS) (REFERS TO ALL DISTRIBUTING UTILITIES AND PIPELINE COMPANIES) TOTAL INDUSTRY

	Twelve Months Ended Sept. 30		Per Cent Change
	1958	1957	
Total operating revenues	\$6,946	\$6,160	+12.8
Operating expenses—operations	4,446	3,937	+12.9
Operating expenses—maintenance	246	228	+7.9
Total operating expenses	4,692	4,165	+12.7
Depreciation, retirements, depletion, amortization, etc.	476	429	+11.0
Federal income taxes	520	457	+13.8
All other taxes	357	322	+10.9
Total taxes	877	779	+12.6
Total operating revenue deductions	6,045	5,373	+12.5
Net operating revenues	901	787	+14.5
Other income	112	75	+49.3
Gross income	1,013	862	+17.5
Interest on long-term debt	311	253	+22.9
Other income deductions	(4)	5	—
Total income deductions	307	258	+19.0
Net income	706	604	+16.9

of last year. The Association's October index of gas utility and pipeline sales is 232.6 (1947-1949 = 100).

During the 12 months ended Oct. 31, 1958, total utility and pipeline

sales of gas aggregated 79,173 million therms, equivalent to an increase of 4.6 per cent over the 75,674 million therms consumed in the 12 months ended Oct. 31, 1957.

Calculating

(Continued from page 31)

effects of temperature and pressure on the supercompressibility factor. In Figure 2 the variations in the F_{pv} factor as the temperature changes are shown for selected pressures of 400, 1000, 1600 and 2000 psi. It can be noted that the supercompressibility factor increases very rapidly as the temperature decreases, and this increase is especially noticeable below a temperature of 0°F. The crossing of the 1600 psi and the 2000 psi curves at -22°F. is due to the fact that the supercompressibility curve reaches a peak at approximately 1600 pounds at -40°F. as will be shown in Figure 4.

The solid curves in both Figures 3 and 4 are plotted from supercompressibility tables in Report No. 3. The calculated supercompressibility data are indicated as a dash line. It appears probable that the calculated data are as accurate as the A. G. A. tables. The only way to determine this would be to compare both curves with the original test data.

Figure 3 illustrates the variations in the supercompressibility factor as the pressure changes, at temperatures of -40°F., 0°F., 60°F. and 120°F. This figure illustrates the very high super-

compressibility factors at the lower temperatures. It appears that the data at the extremely low temperature of -40°F. are somewhat questionable because of the difficulty in obtaining tests under this condition. The curve for -40°F., which goes off the top of the chart in Figure 3, is plotted on a different scale in Figure 4 so that the maximum at approximately 1600 psi can be observed.

Figure 5 is a plot of the difference between the F_{pv} values from A. G. A. Report No. 3 and the calculated F_{pv} values. These curves are for pressures of 1,000 and 1,980 psi and show the variation between the A. G. A. value and the calculated value as the temperature varies. As was pointed out previously, the variation is greatest at high pressures and at low temperatures. At 1,000 pounds pressure the maximum variation between the calculated and the A. G. A. value is 4/10 of 1 per cent at -40°F. At 0°F., the difference is only about 1/20 of 1 per cent. At 1,980 pounds the variation is 1/10 of 1 per cent when the temperature gets down to about 14°F. There is a 2 per cent variation at -40°F.

In Figure 6 the variations between the A. G. A. values and the calculated values for temperatures of -40°F., 0°F., and 40°F. are plotted as a func-

tion of pressure. At 40°F. the variation is less than 3/100 of 1 per cent at all pressures. At 0°F. the variation is less than 1/10 of 1 per cent at pressures of less than 1,750 pounds. At -40°F. the variation is slightly over 1 per cent in some cases.

From these data it appears that the calculated values are within an acceptable tolerance of 1/10 of 1 per cent at all points between 0 and 2,000 psi as long as the temperature does not go below 0°F. At lower temperatures and high pressures it appears that additional data may be required to show definitely whether the calculated values are any more or less accurate than the values in the A. G. A. tables. These additional data may be most important if low temperature storage and metering, as well as development of Canadian gas sources (with low winter temperatures), should increase in the future.

The authors wish to thank Orval Clark, San Francisco, and R. W. Birch, Denver, who represented the I.B.M. Corp. in the project and Max W. Peterson and William J. Brian, Statistical Services Division, Hill Air Force Base, Clearfield, Utah, and L. M. Wolley of the Pacific Northwest Pipe Line Corp., who helped with the calculations.

Industry news

Five all-gas kitchens available for display throughout country

IN AN EFFORT to place some of the all-gas, magazine-designed kitchens and laundries which were exhibited at the American Gas Association's 1958 convention into local shows and utility sales rooms, the Association's New Freedom Gas Home Bureau has mailed to member companies a brochure giving details about the available models.

The brochure supplies information about shipping, specifications of the models, and cabinet manufacturers' loan terms, and includes black and white photographs of the available rooms.

The first model was designed by *New Homes Guide* and Dimensional Kitchens. It is 30 feet long by 10 feet wide, including a 10-foot patio area which can be eliminated in order to reduce the length to 20 feet. Dimensional will absorb the costs of transportation and personnel to man the exhibit. The local utility must bear the costs of, and supply the labor for, erection and dismantling. Preferred locations are the New England and Middle Atlantic states, and Ohio, Michigan, Illinois, Indiana, Florida, Texas, Louisiana, Wisconsin, Missouri, Oklahoma and Pennsylvania. Further details are available from Elliot Lief or Dr. Alvin A. Goldhush, both at Dimensional Kitchens, Railroad Avenue, Copiague, Long Island, N. Y.

Designed by *Living for Young Homemakers* and I-XL, the second display model, called "One Kitchen in Three Moods," is 60 feet long, 10 feet wide and eight feet six inches high. I-XL will lend the display at no cost. The utility must bear the costs of shipping, erection and dismantling. Preferred locations are Cleveland, St. Louis and Kansas City, Mo., Philadelphia, New York City, Boston, Denver, and any city in Florida. Additional information is available from Leo McDonald, Award Exhibits, Inc., 308 West Erie Street, Chicago 10, Ill.

The St. Charles kitchen and laundry, designed by *American Home*, is the third model offered for exhibition. It measures 20 by 22 feet and is eight feet high. The model is

available only for showings of three months or more. St. Charles must be reimbursed for shipping, erection and dismantling costs. Possible cooperative agreements may be arranged by utilities with St. Charles dealers. Preferred location is the Midwest. More details are available from O. R. Beardsley or R. F. Ekman, both at St. Charles Manufacturing Co., St. Charles, Ill.

The fourth model is Bing Crosby's Tracy-American kitchen and laundry, designed by *Ladies' Home Journal*. The display is 11 feet wide by seven feet high. An identical miniature model measures four feet wide by two feet high. The utility must undertake the costs of shipping, erection and dismantling. The kitchen is available after Jan. 22. Additional information may be had from either Margaret Davidson, *Ladies' Home Journal*, 1270 Avenue of the Americas, New York, N. Y., or John Fuller, *Ladies' Home Journal*, 380 Madison Avenue, New York, N. Y.

The fifth and final model currently available is the Yorktowne kitchen and laundry, designed by *Family Circle*. This model is 20 feet square. The utility must pay shipping, erection and dismantling costs. The display is available after Jan. 22. Preferred locations are the 60 major cities in which Yorktowne is available. Additional details may be received from Dave Wepman or Dean Hildebrand, both at Yorktowne Kitchens, Division of Colonial Products Co., Dallastown, Pa.

Gas industry causes less than 3 per cent of 1957 building fires

LESS THAN 3 per cent of the building fires recorded in the United States during 1957 were attributed to gas and gas appliances in a report by the National Fire Protection Association (NFPA). Out of a total of 843,900 building fires in the nation, only 22,800 were listed as caused by gas.

The NFPA, a non-profit, voluntary membership fire safety organization, compiles annual estimates of the country's fire causes and losses, based on statistics collected from federal, state and local fire authorities.

Losses in building fires during 1957 were estimated at \$1,068,000,000. Gas fires were

charged with only about 2 per cent of this total, or an estimated \$28,600,000.

Defective or overheated cooking and heating equipment of all types caused an estimated 117,900 building fires, with losses totaling nearly \$114 million. Out of these totals, gas-fueled equipment was charged with only 12,000 fires and \$18,400,000 in losses. Building fires attributable to gas and gas appliances, including gas explosions, were estimated at 10,700, and caused losses of \$10,200,000.

In the NFPA list of 24 causes of building fires in 1957, "smoking and matches" led

with 130,800 fires. The greatest loss from known causes was the \$109,500,000 attributed to "electrical, fixed services, fires due to misuse, or faulty wiring, equipment." At the bottom of the list was "thawing pipes," which were responsible for 3,900 fires and \$1,500,000 in losses.

These figures were first reported in an eight-page article in the October issue of the NFPA's *Quarterly*. Reprints of the article, at 25 cents per copy, are available in pamphlet form from the National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.

Waste King seeks operating control of Cribben and Sexton

WASTE KING CORP., Los Angeles, is seeking to acquire operating control of Cribben and Sexton Co., Chicago, by purchasing a majority of that firm's common stock.

Waste King anticipates sales of \$35 million in the coming fiscal year of both its own and Cribben and Sexton's product lines.

The stock negotiations were made public by Bertram Given, president, Waste King, and Wendell C. Davis, president, Cribben and Sexton, when Waste King petitioned the California Division of Corporations for permission to make an offer to buy common stock from the Chicago firm's stockholders.

According to the petition, Waste King will offer one share of its common stock, plus

\$12.50, for each two shares of Cribben and Sexton common. There are 188,150 shares of Cribben and Sexton common stock currently outstanding. Waste King will have no obligation to consummate the exchange if fewer than 165,000 shares are tendered; on the other hand, the company will accept up to 182,000 shares.

Waste King proposes to exchange not more than 97,300 shares of its common stock. If exactly 165,000 Cribben and Sexton shares are tendered for exchange and subsequently accepted, Waste King will obtain them at a cost of 82,500 shares of its own common stock, plus \$1,031,250 in cash.

Waste King plans to operate Cribben and Sexton as an autonomous company, with Mr.

Davis remaining as president, and with no changes in the Cribben and Sexton staff.

Waste King, a 12-year-old firm, produces dishwashers, household and commercial garbage disposers, incinerators, and technical products for industry and government.

Cribben and Sexton's products include free-standing and built-in household ranges, space heaters, commercial cooking equipment, dryers, and dishwashers, all sold under the Universal brand name.

Waste King maintains manufacturing facilities for its consumer products and technical products divisions in Los Angeles, and for its incinerator division in Cleveland. Cribben and Sexton has plants in Chicago, Michigan City, Ind., and Independence, Kan.

Arkansas Louisiana Gas buys Reynolds Gas Regulator Co.

ARKANSAS LOUISIANA GAS CO. has purchased Reynolds Gas Regulator Co., Anderson, Ind., for \$1 million. A producer of regulators and gas control devices for utilities and LPG industries, Reynolds Gas Regulator was established 38 years ago and has operated at a profit every year since, except 1932.

Floyd Gaunt, vice-president of Reynolds, will continue in that post. He will also serve

as the subsidiary's general manager.

The present Anderson factory will remain in operation, and a new factory will eventually be opened in Arkansas to manufacture the same products. The new plant is expected to employ some 100 persons.

According to W. R. Stephens, board chairman and president, Arkansas Louisiana Gas, this purchase is in line with the diversifica-

tion program initiated by the company two years ago. So far, through this program, the utility has added to its operations all-year gas air conditioning equipment, gas lighting, cement manufacture, chemicals, horse-drawn buggy equipment, and pipeline construction. All of these operations are handled by wholly-owned subsidiaries of Arkansas Louisiana Gas.

Citizens Gas and Coke wins 4 safety awards

CITIZENS GAS AND COKE Utility, Indianapolis, has received four awards this year from the American Gas Association and the National Safety Council for safety records established in 1957 and 1958.

The first was the Safety Achievement Award, which was presented by A. G. A. for the lowest frequency rate of employee accidents in 1957. The company competed for this award in the manufactured and mixed gas

category of 501 to 1,500 employees.

The second was an A. G. A. Merit Award for operating from April 5 through Aug. 31, 1958, without a chargeable, lost-time accident. This award represented one million consecutive man-hours of work without a chargeable, lost-time accident.

The third and fourth awards, presented by the National Safety Council, recognized the same two records honored by A. G. A.

Roof houses gas equipment

SOME 60 TONS OF GAS air conditioning and heating equipment were hoisted recently to the roof of a 20-story office building in Buffalo, N. Y.

The new skyscraper, the Tishman Building, has its cooling and heating equipment located aloft in order to preserve basement space for storage or rental. The roof installation also eliminates both the necessity of running many pipes and shafts the entire height of the building, and the usual large boiler stack or chimney and long steam relief line. With this roof construction, the only service running up through the building is a fuel line to the boiler.

The Tishman Building will be serviced by Iroquois Gas Corp., Buffalo.

Washington utility enlarges expansion budget

A \$5 MILLION BUDGET for expansion has been approved by the board of directors of Washington Natural Gas Co. This appropriation will permit the company to continue its current expansion program, which began in 1956 and has included a \$5 million expenditure in each of the past three years.

In a report to the board of directors, Charles M. Sturkey, company president, said that, so far this year, the firm has added 10,-

000 heating customers; that, since natural gas was introduced in the Pacific northwest two years ago, the company has brought service to 76 new residential sections with 3,000 homes; and that the company has built an industrial business, which now accounts for about 50 per cent of revenue, and which includes one customer currently using as much gas as the company sold to all customers in Seattle before the arrival of natural gas.

Michigan Consolidated to build new office

YAMASAKI, LEINWEBER, and Smith, Hinchman and Grylls, associated architects and engineers, have been chosen by Michigan Consolidated Gas Co. to design a new office building which will serve as the utility's central headquarters.

Estimated at a cost of \$20 million, the structure will be built in downtown Detroit. The utility presently has its own main office and six additional offices scattered throughout

Detroit. The new building will bring all of these operations under one roof. It will also house American Louisiana Pipe Line Co., Michigan Wisconsin Pipe Line Co., and other affiliates of the American Natural Gas Co. system.

Completion of the new building, which will include some 400,000 square feet of space and an underground garage, is scheduled for some time in 1962.

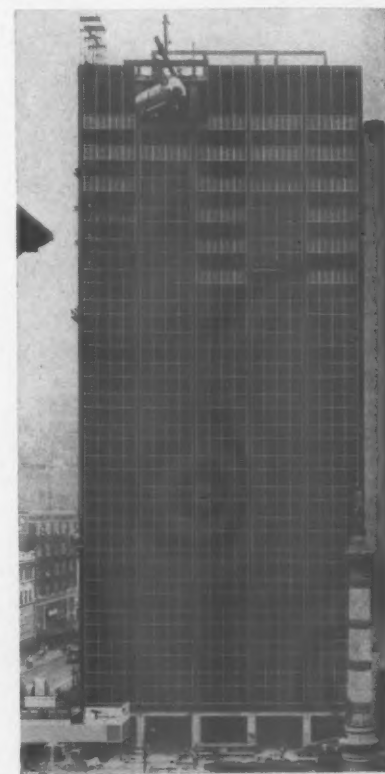
Underground corrosion course set for June

THE Appalachian Underground Corrosion Short Course General Committee, at its Dec. 4 meeting in Pittsburgh, selected June 2-4 as the dates for the fourth annual (1959) corrosion short course. The School of Mines of the University of West Virginia will play host to the course for the fourth year.

The course covers both technical and non-technical presentations of the practical and theoretical aspects of corrosion. It has been approved by the American Gas Association

and endorsed by the National Association of Corrosion Engineers. The 1958 session was attended by some 500 people from 27 states and Canada.

Thirty-eight firms have already been scheduled to exhibit at the June meeting. Others interested in being listed as approved exhibitors should write to George G. Campbell, exhibits chairman, Appalachian Underground Corrosion Short Course, University of West Virginia, Morgantown, W. Va., before Feb. 1.



The 23-ton gas air conditioning unit, which will service the Tishman Building in Buffalo, is hoisted to the roof of the new skyscraper

California Farmers Market shows 'Western Family Gas Kitchen'



The newest concepts in gas kitchen design and equipment are incorporated in the multi-section "Western Family Gas Kitchen," designed and built by Southern California Gas Co., Southern Counties Gas Co., and "Western Family Magazine," and on exhibition in the Los Angeles Farmers Market

THE NEWEST ATTRACTION at the Farmers Market in Los Angeles is the "Western Family Gas Kitchen," sponsored by Southern California Gas Co. and Southern Counties Gas Co., and designed and built in cooperation with *Western Family Magazine*.

The "Western Family Gas Kitchen," which is located in a permanent, 500-square foot

display building, has an interior length of 28 feet and an expanded width of 15 feet to allow for visitor traffic. The room is divided into three parts by angled counters and a divider wall. The center portion is further separated into preparation, cooking, serving and cleaning areas.

The kitchen is turquoise, with highlights of

redwood paneling and tile. Kitchen Maid cabinets are also in turquoise. The major appliances are in cocoa brown. The colors of the striped Armstrong Imperial Excelon flooring are coral and green.

A family room eating area is connected to the kitchen by means of a shallow peninsular serving counter, over which a glass-doored, china storage cabinet is suspended.

Concealed behind an angle divider toward the rear of the room are the utility sink and RCA Whirlpool washer and gas dryer. Opposite these appliances is a raised, built-in closet for the Arkla-Servel gas air conditioning unit and the Rheem gas water heater.

The pantry features shallow door shelves, adjustable inner shelves, and sloping can racks. Part of the preparation area, the pantry is close to the RCA Whirlpool built-in gas refrigerator, the counter space, and twin Ziegler-Harris stainless steel sinks.

The cooking portion of the kitchen faces the family room with a counter-level, gas-fired Char-Glo broiler-barbecue. The gas wall oven, located at one end of the counter, offers additional space for setting down sizzling ovenware.

The entire cooking complement is unified with Hermosa Dura-Glaze tile by Gladding McBean, Inc., which created a new Carriage Series Decorate Tile to serve as accent pieces in the counter and wall. A decorative L-shaped hood, designed by Perfection Metal Fabricators, also ties together the cooking area.

A built-in Kitchen-Aid dishwasher, a Nutone mixer-blender and a Western Holly garbage disposer complete the kitchen's line of appliances.

GAMA reports October 1958 as highest sales month in 2 years

THE MORE THAN 550 members of the Gas Appliance Manufacturers Association recorded their best month in more than two years in October 1958 and see no signs of a letdown in 1959.

In a report to members, Clifford V. Coons, GAMA president, and executive vice-president, Rheem Manufacturing Co., said that, in October alone, 215,400 free standing and built-in gas ranges, 428,000 units of gas central and direct heating equipment, and 256,300 gas water heaters were delivered. These appliances, together with a large number of gas clothes dryers, refrigerators, incinerators, and

air conditioning systems, produced the gas industry's highest monthly shipment total since early 1956, Mr. Coons said.

Four factors credited for the October boom were new home construction and increased housing demand, more home modernization, an increase in the number of pieces of gas equipment per home, and well distributed purchasing power throughout the nation.

Other factors cited as contributors to the October total were advertising, which has been both greater in volume and more persuasive in tone, better sales promotion and service, and more devotion to the job of build-

ing sound public relations.

Still other factors noted were record expenditures for research and development, and the expansive testing programs in both the American Gas Association Laboratories and the manufacturers' own research facilities which accounted for the development of completely new gas-burning products and for the improvement of existing products.

A final factor cited was the replacement market, which, Mr. Coons reported, caters to customers both replacing worn out models and wishing merely to own the latest, most modern appliances.

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● Arkansas Louisiana Gas Co. has filed a budget type application seeking authority to construct \$2.9 million of natural gas facilities during 1959, in order to facilitate the securing of new gas supplies as they become available. The cost of each project

would not exceed \$500,000.

● El Paso Natural Gas Co. has been granted temporary authority to construct and operate approximately 87 miles of various diameter gathering lines, and to add 3,150 horsepower to the Chaco compressor

station, together with appurtenant facilities, at a combined cost of nearly \$4 million. These facilities are required in order for the company to be able to secure approximately 10 million cubic feet of natural gas which is now flared daily in the Bisti Field. When completed, these facilities will

be part of a \$47 million program to deliver an additional 100 million cubic feet daily to Pacific Gas & Electric Co.

● **Michigan Wisconsin Pipe Line Co.** has filed a new application proposing \$9 million in natural gas facilities, including 279 miles of pipeline and 2,750 additional compressor horsepower, which will extend service to 27 new communities in the Wisconsin River Valley and to Marinette, Wis., and Menominee, Mich. This project is in lieu of a former project which was rejected by the FPC along with all other competing proposals to serve the Midwest market area. This project is intended to pave the way for use of Canadian gas, whenever it becomes available.

● **Natural Gas Pipeline Co. of America** has received temporary authorization to add 6,000 compressor horsepower to its Mt. View, Okla., station, and to construct both a new 1,920-horsepower compressor station at Chico, Texas, and various other field facilities, at an approximate cost of \$3.8 million. The current authorization permits operation of both the new facilities and those facilities for which temporary authority was granted previously for construction but not for operation. The combined project, which involves 511 miles of loop lines, metering facilities, and compressor stations, will increase system deliveries of natural gas by 185 million cubic feet daily.

● **Northern Natural Gas Co.** will file an application for approval of natural gas facilities needed to connect to its system 326 new communities in Iowa, Minnesota, South Dakota, Nebraska, Wisconsin and Illinois, and needed to extend service to Duluth, Minn., Superior, Wis., and the Iron Ranges. A former proposal to serve these communities was denied on the ground that the company's Redfield storage project was not sufficiently proven to be used for main line capacity. This objection will be overcome by constructing additional pipeline capacity and by proving that the Redfield project is workable. In another application, the company was granted authorization to construct and operate 2,000 additional horsepower at each of two compressor stations with 19 miles of pipeline in Texas and Oklahoma, at an over-all cost of \$3 million, for the purpose of securing an additional 50 million cubic feet of natural gas daily from Permian Basin Pipeline Co. The company also received authorization of its budget type application to construct and operate during 1959 natural gas facilities to attach new natural gas supplies from adjacent areas, as these supplies become available. Each project is limited to \$500,000, with the over-all cost of all projects limited to a total of \$4 million.

● **Tennessee Gas Transmission Co.** and **Midwestern Gas Transmission Co.**, following denial of earlier proposals, have filed new applications proposing pipeline facilities to supply natural gas to the Chicago-Gary metropolitan area. Midwestern Gas Transmission is seeking approval to con-

struct and operate both 351 miles of pipeline from Portland, Tenn., to Joliet, Ill., and two compressor stations with a total capacity of 14,300 horsepower. Under this proposal, Peoples Gas Light and Coke Co. would receive 100 million cubic feet of natural gas daily, Northern Indiana Public Service Co. would get 200 million cubic feet daily, and Northern Illinois Gas Co. would receive 60 million cubic feet daily. In order to supply Midwestern Gas Transmission with 363 million cubic feet of natural gas daily, Tennessee Gas Transmission would construct 157 miles of pipeline paralleling sections of its existing system in Louisiana and Mississippi, and 114,900 compressor horsepower to be installed at stations in Texas, Louisiana, Mississippi and Tennessee. The estimated cost of the Midwestern Gas Transmission project is \$50.8 million. The Tennessee Gas Transmission proposal is estimated to cost \$61.5 million.

● **United Gas Pipe Line Co.** has received approval of its budget type application to construct a total of \$3 million of natural gas facilities needed to enable it to receive natural gas purchased in the general area of its system during 1959. The cost of any one connection is limited to \$400,000. In another proceeding, the company was authorized to construct pipeline facilities, under a budget type application, to facilitate direct industrial sales of natural gas. The total cost of construction is not to exceed \$1.5 million; each single project is limited to \$400,000. In still another proceeding, the company has under consideration another application seeking authority to construct nine miles of pipeline, at a cost of \$1.2 million, for the purpose of connecting the gas reserves in the Belle Isle area of Louisiana to the firm's transmission system.

Rate cases

● **East Tennessee Natural Gas Co.** has filed an application requesting a \$615,000, or 7.4 per cent, annual wholesale natural gas rate increase which would affect 24 wholesale customers in Tennessee and Virginia. A proposed increase by the supplier, Tennessee Gas Transmission, is the basis for this filing.

● **New York State Natural Gas Corp.** has applied for a \$5.7 million, or 11.1 per cent, annual wholesale natural gas rate increase which would affect 17 wholesale customers in New York, Ohio and Pennsylvania. The proposed increase, to become effective as of Jan. 1, 1959, is based primarily on proposed increases by the utility's two suppliers, Tennessee Gas Transmission and Hope Natural Gas Co. The company also cited increases in wages, labor and taxes, and a 6.5 per cent rate of return.

● **Tennessee Gas Transmission** has applied for a \$19.4 million, or 7.7 per cent, annual wholesale natural gas rate increase. The higher rates, proposed to become effective as of Dec. 15, 1958, would affect about 100

wholesale customers in Connecticut, Kentucky, Louisiana, Massachusetts, Mississippi, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Tennessee and West Virginia. This filing is due entirely to the increased cost of purchased gas and is in addition to a \$24.1 million annual increase now being collected subject to refund.

● As a result of the Tennessee Gas Transmission request for higher rates, nine pipeline companies have filed similar rate applications. Six of these increases, totaling \$7.4 million annually, were submitted by subsidiaries of The Columbia Gas System, Inc.: United Fuel Gas Co. filed for a \$4.3 million increase; Kentucky Gas Transmission Corp. for \$833,000; Atlantic Seaboard Corp. for \$1.4 million; The Ohio Fuel Gas Co. for \$268,000; Home Gas Co. for \$131,000; and The Manufacturers Light & Heat Co. for \$458,000. Last November, the F.P.C. suspended other proposed increases by these six companies totaling about \$15.6 million annually. In addition, Hope Natural Gas Co. proposed a \$6.1 million annual increase, in lieu of a \$4.7 million annual increase filed earlier; Tennessee Natural Gas Lines filed for a \$364,000 annual increase; and Alabama Tennessee Natural Gas Co. filed for a \$155,000 annual increase. These three companies are also collecting prior increases, subject to refund.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—NOVEMBER 1958

	Number	Annual Amount
Tax rate increases allowed without suspension	1	\$ 1,035
Other rate increases allowed without suspension	112	498,310
Rate increases suspended	87 ¹	1,956,393 ¹
Total rate increases	200	2,455,738
Tax rate decreases allowed without suspension	1	1,155
Other rate decreases allowed without suspension	—	—
Total rate decreases	1	1,155
Total rate filings	851 ²	—
Total rate filings acted on from June 7, 1954, to Nov. 30, 1958	33,256 ³	—
Rate increases disposed of		
after suspension	8	15,366
Amount allowed	1	1,204
Amount disallowed	4	11,647
Amount withdrawn	3	2,515
Rate increases suspended and pending as of Nov. 30, 1958	1,830 ⁴	\$81,988,693 ⁴

¹ Excludes three increases in Louisiana Tax, in amount of \$2,374.

² Excludes three Louisiana Tax increase filings.

³ Excludes 822 Louisiana Tax increase filings.

⁴ Excludes 762 increases in Louisiana Tax, in amount of \$10,684,161.

In other FPC matters, Consumers Power Co. has been exempted from regulation under the Natural Gas Act, pursuant to the terms of the Hinshaw Amendment. A total of 119 companies have now been exempted either fully or partially since the enactment of the Hinshaw Amendment on March 27, 1954.

Tollefson elected board chairman of Institute of Gas Technology

E. H. TOLLEFSON, executive vice-president, Consolidated Natural Gas Co., was elected chairman of the board of the Institute of Gas Technology at the group's 17th annual meeting Oct. 29 in Chicago. He succeeds Everett J. Boothby, board chairman and chief executive officer, Washington Gas Light Co. Mr. Tollefson has been an Institute trustee since 1955.

In addition, a roster of new trustees was selected. Chosen for the term expiring in 1959 were Linn Bowman, vice-president, Rochester Gas & Electric Corp.; F. S. Cornell, executive vice-president, A. O. Smith Corp.; and Milton J. Pfeiffer, vice-president, Cincinnati Gas & Electric Co.

R. J. Rutherford, president, Worcester Gas & Light Co., was selected for the term ending in 1960.

Elected for the term ending in 1961 were Marvin Chandler, president, Northern Illinois Gas Co.; Sheldon Coleman, board chairman, The Coleman Co.; John E. Heyke, Jr., president, The Brooklyn Union Gas Co.; Lester T. Potter, president, Lone Star Gas Co.; Carl J. Sharp, board chairman, Acme Steel Co.; J. McWilliams Stone, president, Du Kane Corp.; Charles M. Sturkey, president, Washington Natural Gas Co.; Henry Tuttle, president, Michigan Consolidated Gas Co.; and Mr. Tollefson.

Chosen to serve on the executive committee of the Institute's board of trustees were Eskil I. Bjork, board chairman, The Peoples Gas Light & Coke Co.; Mr. Boothby; Mr. Coleman; Frank C. Smith, board chairman, Houston Natural Gas Corp.; James D. Cunningham, president, Republic Flow Meters Co.,

representing Illinois Institute of Technology; Thomas Drever, director, American Steel Foundries; and Mr. Sharp. In addition, the Institute's board chairman and president are ex officio members. R. J. Spaeth is the committee's secretary-treasurer.

During the annual meeting, delegates viewed three animated exhibits illustrating research projects currently being conducted at the Institute under the American Gas Association's PAR plan.

One display showed, by means of a graph, the difference between the country's reserves of petroleum and natural gas and its reserves of coal and shale oil; the second exhibit presented an actual shadowgraph of a flame used in combustion studies; and the third demonstrated the use of radioactive tracers in determining pipeline flow rates.

Citizens Gas Fuel opens remodeled office building in Michigan

CITIZENS GAS FUEL CO. recently unveiled its remodeled office building in downtown Adrian, Mich. The modernized structure represents the completion of the \$1 million property construction and improvement program conducted by the utility during the past five years.

The new exterior of the building is made of glass, grey stone, and aluminum. Decora-

tive, tinted, heat-resistant panels are mounted above the main display windows.

A new highlight of the building is a fully outfitted model kitchen. Other additions are the modern heat-resistant windows, which illustrate just one phase of the extensive redecoration done throughout the entire building.

Participants in the ribbon-cutting cere-

mony for the remodeled building were Roy McPhail, mayor of Adrian; Barbara S. Dolan, Mrs. Michigan of 1958; Russell B. McAfee, president, and John O'Brien, secretary, Adrian Chamber of Commerce; and Elmer Gmeiner, president, John K. Tolford, executive vice-president, Robert S. Mikesell, chairman of the board, and Jack Harris, director, all of Citizens Gas Fuel.

California firms apply for gas lighting rate



The first filing of a gas lighting rate with a public regulatory body since 1919 was celebrated recently in Los Angeles by (l. to r.) Matthew J. Dooley, commissioner, California Public Utilities Commission; Cecil L. Dunn, rate department manager, Southern Counties Gas Co.; and Susie Gross, who represented the technology of the present space age as she lit the symbol of a past age. In a recent action, Southern Counties Gas and Southern California Gas Co. jointly asked the commission to allow them to institute a special rate for the decorative and useful gas lamps

Air pollution films available

TWO NEW FILMS on air pollution have been made available through the Public Health Service of the United States Department of Health, Education and Welfare. "Public Enemy," a 16 mm, 28½-minute, black and white, sound film, presents illustrated explanations of causes of air pollution and shows how these causes are being studied. "The Troubled Air," a 16 mm, 22-minute, color, sound documentary, describes the national scope of the air pollution problem and tells about research projects in progress to reduce this national menace to health. These films are available, free of charge, on loan from Air Pollution Program, Public Health Service, U. S. Department of Health, Education and Welfare, Washington 25, D. C., or may be requested through state or local health departments.

Safety record set

THE BEAUMONT distribution division of United Gas Corp. has completed one million man-hours without a lost-time accident. H. B. Sneed, employee relations supervisor and supervisor of safety activities at Beaumont, reported that the distribution unit has been without a lost-time accident since Sept. 11, 1956. The Beaumont division recently won a first place award from the Texas Safety Association for having been without an accident during 1957.

Air conditioning standards committee meets



The Subcommittee on Approval Requirements for Gas Summer Air Conditioning Appliances, at its Nov. 20-21 meeting at American Gas Association Laboratories in Cleveland, reviewed the industry's comments on proposed approval requirements for absorption-type gas-fired air conditioning units, and adopted a proposed standard for letter ballot approval by the ASA Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee. Subcommittee members (l. to r.) are J. Davidson, F. E. Hodgdon, L. B. Nye, Jr., R. J. Evans, K. T. Davis, I. E. Rowe (chairman), R. E. Cramer, W. B. Pizzini, H. Luoma, W. A. Collins, Jr., R. K. Eskew, G. Cornfield, F. E. Vandaveer, L. Price, Jr., and C. F. Geltz

Giant gasholder will be built in California

LONG BEACH, CALIF., will soon be the home of one of the largest gasholders in the United States. Scheduled for completion this Nov. 1, the Wiggins gasholder, largest such facility to be built in the country since 1931, will be owned and operated by the City of Long Beach Gas Department.

The structure will consist of 2,000 tons of steel, will have a diameter of 214 feet, and will be 173 feet 10 inches high. The \$1,326,000-gasholder will contain five million cubic feet. It will be located at Heartwell Park and will be part of the complete facilities of the department's Compressor Plant No. 6. The compressor will cost \$1,200,000.

The M. A. Nishkian Co., consulting engineers, Long Beach, prepared the plans and specifications for the gasholder. General American Transportation Co. is in charge of construction.

The main building in the project will be

of rigid frame with porcelainized aluminum exterior panels and curtain wall design. It will have an octagonal floor plan, which will house four main 550-horsepower gas engine-driven reciprocating compressor units and related equipment. The project, which will also include offices and a control room, will be fully landscaped.

A central instrument recording and indicating panel will control the entire plant automatically through the use of pneumatic controls. An electric supervising control selector panel will permit an operator to open and close by remote control individual valves or groups of unattended valves located as far away as two miles.

Completion of the plant is scheduled to tie in with the start of the gas department's program of furnishing gas to the Southern California Edison Co.'s electric generation plant in Huntington Beach, Calif.

Fraternity honors Rockwell

WILLARD F. ROCKWELL, JR., president, Rockwell Manufacturing Co., received the national "Man of the Year" award of Kappa Sigma, national fraternity, at the group's "Founder's Day" dinner last month in Pittsburgh. Mr. Rockwell, at 44, is the youngest man ever to receive the award, which was established in 1937. A former president of the Pennsylvania State Chamber of Commerce and current director of 10 leading corporations, Mr. Rockwell was cited for his industrial accomplishments and civic contributions.

Subcommittee meets

MEMBERS OF THE American Gas Association Domestic Gas Range Approval Requirements Subcommittee took a two-day tour of the facilities of the Pacific Lighting Corp. system recently, following a business meeting in Los Angeles. The members witnessed operations of Southern California Gas Co., Southern Counties Gas Co. and the Pacific Lighting Gas Supply Co., and toured both gas storage facilities in the Los Angeles basin and the three major pipeline arteries which transport gas into California from out-of-state.

Lone Star opens plant

LONE STAR GAS CO. has begun operation of a new 880-horsepower compressor at its Ambassador Field gas storage project in Clay County, Texas. The opening of this compressor marks the start of operations designed to make an additional one and one-half billion cubic feet of gas storage capacity available to the company's transmission system for peak periods. Newest of five gas storage projects dotting the Lone Star pipe line system, the Ambassador Field injection lines were completed Oct. 6. Construction on the Ambassador field project, which was begun early last August, will ultimately include a 50 million cubic foot per day dehydration plant to dehydrate gas from the New York City field storage and the Ambassador reservoir. The new plant includes approximately 174 acres of underground reservoir. Its capacity, including cushion and native gas, is about 2,559,525,000 cubic feet.

Standards booklet issued

COPIES OF THE American Standard Installation of Domestic Gas Conversion Burners, Z21.8-1958, are now available from the American Gas Association. The provisions outlined in this fourth edition have been reviewed, and modified where necessary, by the Subcommittee on Listing and Installation Requirements for Domestic Gas Conversion Burners. The revised text has also been approved as American Standard by the American Standards Association. Copies of the four-inch-by-six-inch booklet may be obtained for 35 cents each from the A. G. A. Laboratories in Cleveland.

A. G. A. awards gas range



Blanch Stover (left) of "Parents" magazine admires the prize—a Roper gas range—she won at the 1958 American Gas Association convention in Atlantic City, as Mrs. Ann Miseyko, home service director, The Brooklyn Union Gas Co., describes the features of the appliance

Accident frequency, severity rates hit 1958 high in third quarter

THE accident experiences of 86 companies, which represent 39 per cent of the total of gas industry employees, indicate that the third quarter of 1958 was the most hazardous of the year.

The number of disabling injuries per million man-hours worked (frequency) increased to 9.42; at the same time, the number of days lost per million man-hours of exposure (severity) due to these disabling injuries increased to 761. These rates represent increases of 15.2 per cent and 9.3 per cent, respectively, over the second quarter figures.

The accident experiences during the first three quarters indicate increases of 3.7 per cent and 28.5 per cent in the frequency and severity rates, respectively, when compared with the 1957 accident experiences of the gas industry.

Sixty-six of these companies also filed data on vehicle accident experience. These companies represent 32 per cent of the total of gas industry employees and show 702 vehicle accidents resulting in 44 personal injuries. The average number of accidents per 100,000 miles traveled during the third quarter was 1.46, an increase of 22.6 per cent over the 1.19 accidents per 100,000 miles traveled in the second quarter.

GAS EMPLOYEE ACCIDENT EXPERIENCE

(FIRST, SECOND AND THIRD QUARTERS, 1958)

	1957	1958	1958	1958	1958
	Annual (Revised)	First Quarter (Sample)	Second Quarter (Sample)	Third Quarter (Sample)	Total 1st, 2nd, 3rd Quarters
Number of reporting companies	433	86	86	86	86
Average number of active employees	192,355	76,554	77,645	78,409	*77,536
Number of injuries					
Fatality	15	1	3	4	8
Permanent total disability	1	0	0	0	0
Permanent partial disability	107	4	6	2	12
Temporary total disability	3,023	284	305	362	951
Total	3,146	289	314	368	971
Days charged					
Fatality	90,000	6,000	18,000	24,000	48,000
Permanent total disability	6,000	0	0	0	0
Permanent partial disability	30,952	2,302	3,436	125	5,863
Temporary total disability	53,108	4,077	5,299	5,609	14,985
Total	180,060	12,379	26,735	29,734	68,848
Frequency rate	8.08	7.54	8.18	9.42	8.38
Severity rate	462	323	696	761	593
Vehicle accident statistics					
Average number of employees	150,206	66,114	69,704	65,143	*66,987
Number of vehicles	39,175	18,440	19,157	18,086	*18,561
Vehicle miles traveled (000)	487,732	50,288	54,908	48,021	153,217
Number of reportable accidents	6,848	863	653	702	2,218
Number of personal injuries	212	45	28	44	117
Accidents per 100,000 miles traveled	1.40	1.72	1.19	1.46	1.45

* Average of first, second and third quarters.

GAMA revises Code of Ethics for industrial gas equipment

THE LATEST EDITION of *Gas Equipment for Industrial Uses* (\$1 per copy) has been released by the Industrial Gas Equipment Division of the Gas Appliance Manufacturers Association. This 1958 edition lists the companies and trade names of products of those manufacturers who have subscribed to the GAMA Industrial Gas Equipment Division's Code of Ethics for industrial gas equip-

ment.

Distribution of this list has been made to industrial sales managers, but every industrial gas engineer should have a copy for his personal use, particularly when consulting with customers who may be in the market for additional or new equipment.

It is recommended that gas utilities make this new list available to municipal authorities

so that they may know what industrial gas equipment has been produced by reputable manufacturers who have pledged themselves through a Code of Ethics to construct a product with superior design, workmanship, materials and performance.

Copies of this list may be secured from Gas Appliance Manufacturers Association, Inc., 60 East 42 Street, New York 17, N. Y.

South Jersey Gas opens Glassboro division



Pictured is the new Glassboro, N. J., office of South Jersey Gas Co. The recent opening of the modern, split-level building marked the utility's 48th year of operations. The structure includes sales and commercial offices and an appliance demonstration room. The landscaped area surrounding the building provides parking space. Jarvis D. Lynch is head of the new division

Harper elected president

PHILIP S. HARPER, JR., has been elected president of Harper-Wyman Co. He replaces Philip S. Harper, Sr., retiring president and founder of the firm. Mr. Harper, Sr., will continue as chairman of the board and as an adviser on product research and development. Mr. Harper, Jr., joined the firm in 1948; became manager of the Princeton, Ill., plant in 1950; was named general manager of the company in 1954; and was elected executive vice-president in 1955. Harper-Wyman, with general offices in Chicago, manufactures valves, burners and controls for domestic gas appliances.

Company changes name

MALLEABLE STEEL RANGE Manufacturing Corp. changed its name, effective Jan. 1, to South Bend Range Corp. According to John J. Woolverton, president of the 60-year-old firm, the new name was designed to incorporate the company's trade name, "South Bend," within the corporate name.

Consolidated Natural Gas promotes Lonon, Miller, Kronke and Stansbury



M. S. Lonon



John Miller

CONSOLIDATED NATURAL GAS CO. has elected Malcolm S. Lonon treasurer and John Miller secretary.

Mr. Lonon succeeds H. C. Johnson, a com-

pany director, who is continuing as vice-president and chief financial officer.

Mr. Miller succeeds R. E. Palmer, who has retired.

In other developments, Walter C. Kronke was appointed an assistant treasurer and John C. Stansbury was promoted to assistant secretary.

Mr. Lonon, an assistant treasurer since 1956, has been manager of Consolidated System's tax department since 1953. Previously, he was with The East Ohio Gas Co., where he started in 1932. In 1943, he became head of East Ohio's tax department. He transferred to Consolidated as assistant tax manager in 1951.

Mr. Lonon is a member of the American Bar Association, Tax Executives Institute, the

American Gas Association, and A. G. A.'s Taxation Accounting Committee.

Mr. Miller was with Standard Oil Co. of New Jersey from 1929-48. From 1943-48, he was secretary of several gas pipeline and other subsidiary companies of Standard Oil. He joined Consolidated as the secretary's staff assistant in 1948 and became assistant secretary in 1951.

Mr. Miller is a member of A. G. A. and the American Society of Corporate Secretaries, and is assistant secretary of the Corporate Transfer Agents Association.

Mr. Kronke became assistant controller in 1956. Mr. Stansbury, assistant treasurer since 1956, will also continue in that post. Both Mr. Kronke and Mr. Stansbury joined the Consolidated System in 1934.

Personal and otherwise

Mainwaring retires from British Columbia Electric

W. C. (BILL) MAINWARING has retired as vice-president and assistant to the president of British Columbia Electric Co., Ltd. He joined the firm in 1932.

Mr. Mainwaring's gas industry career started 47 years ago with the old Nanaimo Gas and Power Co., of which he subsequently became plant manager. When he joined British Columbia Electric in 1932, he became merchandise manager. He was promoted to general sales manager in 1937, became a vice-

president in 1944, was named vice-president in charge of Vancouver Island Operations in 1945, and was appointed vice-president and presidential assistant in 1948.

Mr. Mainwaring has held several offices in the Pacific Coast Gas Association. He was a director in 1941-42, 1952 and 1955-56, vice-president in 1953, and president in 1954-55. He was also a member of the American Gas Association's General Public Information Planning Committee.

Northwest Natural announces personnel changes

SEVERAL PERSONNEL CHANGES have been made at Northwest Natural Gas Co.

Charles R. Holloway, Jr., vice-president of marketing, has been assigned additional duties. He will now take charge also of customer service, customer offices and district offices outside of Portland, Ore.

C. W. (Bob) Steele has been appointed assistant to Mr. Holloway. He will supervise nine district offices and handle various special

assignments. He has been with the company 31 years.

Donald W. Hosford has been promoted to general sales manager. Previously manager of direct customer sales, he joined the company three years ago.

Willard J. Mayfield, director of industrial relations, will also serve as assistant to the president of Northwest Natural. Mr. Mayfield joined the firm in 1936.

Mueller promotes Walker

ODIE E. WALKER, vice-president and works manager, Mueller Co., Decatur, Ill., has been named executive vice-president and general manager of the firm's Canadian subsidiary, Mueller, Ltd., Sarnia, Ontario. Mr. Walker became plant manager of Mueller Co.'s Chattanooga branch in 1943. He was elected vice-president in 1950 and transferred to Decatur in 1953 as vice-president and works manager.

Dr. P. P. Anderson named chief engineer at Arkla

DR. PHILIP P. ANDERSON, formerly director of development for Carrier Corp., has been appointed chief engineer for Arkla Air Conditioning Corp.

Before joining Carrier in 1956, Dr. Anderson was associated with Servel, Inc. Starting there in 1936, he served successively as re-

frigeration engineer, research engineer, research supervisor, director of research, and director of development.

Dr. Anderson is credited with a number of patents which have contributed to the improvement and development of gas refrigeration and year-round air conditioning.

John P. Crowley named vice-president-sales

JOHN P. CROWLEY, formerly vice-president in charge of sales, Greenwich (Conn.) Gas Co., has been named vice-president-sales of North Carolina Natural Gas Corp.

In his new post, Mr. Crowley will direct and supervise all of North Carolina Natural's sales, public relations and promotional

activities.

Mr. Crowley was associated with the Greenwich firm for 10 years.

A member of the American Gas Association, Mr. Crowley was also active in the affairs of the New York City Heating and Air Conditioning Council.

Oklahoma utility elects board

OKLAHOMA NATURAL Gas Co., has elected 11 members to a new term on its board of directors. They are Joseph Bowes, chairman of the board, Oklahoma Natural; A. E. Bradshaw, chief executive officer, National Bank of Tulsa; Luther T. Dulaney, manager, Dulaney's Manufacturers and Distributors, Oklahoma City; H. A. Eddins, president, Oklahoma Natural; George Frederickson, vice-president, Oklahoma Natural; William S. Key, investments, Oklahoma City; J. A. LaFortune, independent oil operator, Tulsa; J. William Middendorf, Jr., investment banker, Baltimore, Md.; John Mitchell, investments, Middleburg, Va.; F. W. Peters, vice-president and secretary-treasurer, Oklahoma Natural; and L. C. Ritts, investments, Tulsa.

Ferguson retires as Ohio Fuel Gas vice-president and production manager



W. E. Ferguson

WILLIAM E. FERGUSON, vice-president and manager of production, The Ohio Fuel Gas Company, retired Jan. 1. He was also a member of Ohio Fuel's board of directors and a director and member of the executive committee of Preston Oil Co.

Mr. Ferguson started in the industry

in 1917 as a draftsman with Logan Gas Co. and was named chief engineer in 1924. Following that firm's merger with Ohio Fuel, Mr. Ferguson first became assistant chief civil engineer and then chief civil engineer.

Mr. Ferguson was named superintendent of the lease and engineering departments in 1930. In 1944, he was appointed assistant manager of production. He was promoted to manager of production in 1950, was elected a vice-president in 1952, and became a member of the board of directors in 1956.

A resident of Columbus, Ohio, Mr. Ferguson has devoted many years to aiding YMCA

programs as a member and vice-president of the group's Metropolitan Board. He is presently chairman of the YMCA's World Service Committee. He is a past chairman of the Youth and Recreation Council of the Community Chest, and current chairman of the Board of the Community Services Council.

Mr. Ferguson is a member of the American Gas Association, and a past chairman of its Natural Gas Production Committee. He is also a member and past chairman of the advisory committee of the Eastern district, division of production, American Petroleum Institute, and a past president of the Columbus Gasco Club.

Names in the news—a roundup of promotions and appointments

UTILITY

A. Gordon Hanau has been named manager of Consolidated Natural Gas Co.'s system insurance department. He joined the firm in 1957. Mr. Hanau is a member of the American Gas Association's Insurance Committee.

John S. Shute, former operator of the butane-air system at Camas and Washougal, Wash., has been elected to the board of directors of Northwest Natural Gas Co. He succeeds **William L. Phillips**, who died Oct. 14. Mr. Shute was president of United Gas Co. from 1935 until 1956, when that firm merged with Northwest Natural Gas.

Pacific Gas and Electric Co. has announced two Dec. 31 retirements. **Arthur D. Church**, manager of the San Joaquin division, retired after 44 years with the company, and **W. Frank Pape**, manager of the East Bay division, terminated a 46-year career with the firm. **Vern C. Redman** has been named to replace Mr. Church. Mr. Redman, who joined the PG and E division in San Joaquin in 1926, has been its assistant manager since 1956. **Harold F. Carr** has been appointed to succeed Mr. Pape. First associated with the firm in 1930, Mr. Carr has been manager of the personnel department since 1951.

Kirby E. Crenshaw, president, Cities Service Gas Co., has been elected to the board of directors of Cities Service Co. Mr. Crenshaw joined Cities Service in 1930.

Honolulu Gas Co. has appointed **Allan Clarke** advertising and sales promotion manager. Mr. Clarke was previously associated with the company during 1954-55. For the past three years, he has been connected with Batten, Barton, Durstine and Osborn, advertising agency.

The Brooklyn Union Gas Co. has announced three promotions. **Eugene H. Lunty** has become assistant engineer of development and planning, **Edmund K. Mehring** has been named superintendent of holder distribution, and **Alfred R. Bayer** has been appointed chief chemical engineer, laboratory.

Victor E. Brooks, chief accountant, Mountain Fuel Supply Co., retired Dec. 1 after 34 years with the company. He had

been chief accountant since 1951.

Northern Ontario Natural Gas Co., Ltd., has announced the appointments of three divisional business managers. **William Scott** has become business manager of the Muskoka division, **L. W. Luke** has been named business manager of the Nickel division, and **A. R. Smith** has been appointed business manager of the Porcupine division.

John H. Clark has been named assistant to the manager of public relations of Northern Indiana Public Service Co. He succeeds **Harry Gelenian**, who resigned. Mr. Clark joined the company in 1919. He has been service manager since 1945.

Alfred A. Long, assistant manager of production, The Ohio Fuel Gas Co., retired Dec. 1 after 45 years with the firm. He became assistant manager of production in 1951.

Warren A. Knight has been named director of publicity for Public Service Electric and Gas Co. He replaces **Joseph A. Gallagher**, who died Nov. 1. Mr. Knight joined the company in 1951.

MANUFACTURER

Walworth Co. has announced three personnel changes. **John C. Wallace** has been appointed vice-president and general manager. First associated with the firm in 1957, he has been vice-president of manufacturing and of operations. **Sidney A. Lewis** has been promoted to manager of technical sales service and of bronze valves sales. He joined the company in 1955. **Alfred F. Johnson** has been named assistant chief engineer. He was previously with the forge and fittings division of H. K. Porter Co., Inc.

William H. Coddington has been appointed Midwestern division sales manager for Norge home appliance division of Borg-Warner Corp. He joined the company in 1954.

Warren J. Blanke has been named to the newly created position of marketing manager for Iron Fireman Manufacturing Co. He was previously vice-president and merchandising director of a Toledo, Ohio, advertising agency.

Dwight Stanfield has been promoted to

field service assistant in the Maytag Co.'s Kansas City branch. He succeeds **Bill Morlong**, who has resigned to become regional manager for Maytag Rocky Mountain Co. Mr. Stanfield joined Maytag in 1957.

Clark Bros. Co., division of Dresser Industries, has announced three personnel changes. **John V. James** has been named vice-president-finance. He joined the company in 1956 as assistant comptroller. **William Dumar** and **Joseph A. Goodnough** have been promoted to sales engineers in the firm's Midcontinent area. Mr. Dumar joined the company in 1950. Mr. Goodnough started with Clark Bros. in 1955.

Hugo E. Shane has become industrial systems manager of General Controls Co. He was formerly manager of oil field automation for American Electronics, Inc.

Harper-Wyman Co. has announced the election of two new vice-presidents. They are **Howard J. Goss**, who will be in charge of sales, and **John F. Roggenkamp**, who will take charge of operations. Mr. Goss joined the firm in 1938 and has been sales manager since 1956. Mr. Roggenkamp started with the company in 1935 and became Chicago plant manager in 1954.

Harrington A. Rose has been appointed sales engineer-gas equipment for the Buflavok equipment division of Blaw-Knox Co. Mr. Rose was previously marketing representative for Transcontinental Gas Pipe Line Corp.

Robertshaw-Fulton Controls Co. has elected **John D. Baker, Jr.**, to its board of directors. He replaces **Thomas F. Staley**, who has resigned. Mr. Baker is senior partner of Reynolds & Co. In another development, **William H. White** has been named district sales manager for the company's Fulton siphon division. Mr. White joined the firm in 1956.

OTHER

H. Gardiner Symonds, president, Tennessee Gas Transmission Co., has been elected a member of the board of trustees of the Committee for Economic Development, a non-profit, non-partisan organization of businessmen and educators engaged in research on national economic problems.

Lungren retires from Northern Illinois; Sheehan, Henness and Tuttle promoted



E. D. Sheehan



E. E. Lungren



C. F. Henness



L. W. Tuttle

EDWARD D. SHEEHAN, vice-president in charge of operations, Northern Illinois Gas Co., has been named executive vice-presi-

dent. He succeeds Edgar E. Lungren, who retired Jan. 1.

In other developments, Charles F. Henness

has been promoted to vice-president in charge of divisions and Loren W. Tuttle has been appointed vice-president in charge of operations.

Mr. Lungren served as executive vice-president since 1953. He will continue as a member of the company's board of directors. He began his gas industry career 43 years ago.

Mr. Sheehan, who was elected vice-president in charge of operations in 1954, became a company director last year. He has been associated with the gas industry for 32 years.

Messrs. Henness and Tuttle have been serving as assistant vice-presidents since early in 1958. Mr. Henness began his utility career in 1925. Mr. Tuttle has been employed in the industry for 35 years.

Lauriston E. Knowlton retires as executive vice-president of Providence Gas

LAURISTON E. KNOWLTON has retired as executive vice-president of Providence Gas Co. He will, however, continue as a director of the company.

Mr. Knowlton has been associated with Providence Gas for 39 years. He started as a cadet engineer and subsequently became as-

sistant engineer of manufacture, engineer of manufacture, vice-president of engineering (during World War II), and executive vice-president. He was elected to the post of executive vice-president in 1948.

A member of the American Gas Association, Mr. Knowlton served as chairman of its

technical section, a division later replaced by the Operating Section. Mr. Knowlton is also a past president of the New England Gas Association. He is a member of both the American Society of Mechanical Engineers and the Guild of Gas Managers of New England.

New A.G.A. members

Gas Companies

Frederick Gas Co., Inc., Frederick, Md. (Paul P. Gordon, treasurer)
Illinois Gas Co., Lawrenceville, Ill. (Harold D. Dufoth, general manager)
Peoples Natural Gas Division, Northern Natural Gas Co., Omaha, Neb. (D. L. Sedgwick, vice-president and general manager)

Associate Members

Guaranty Trust Co. of New York, New York, N. Y. (Herbert P. McCabe, vice-president)
The National Gas Association of Australia, Melbourne, Victoria, Australia (Paul Freadman, manager)

GAMA Manufacturing Companies

Astral Equipment, Ltd., Dundee, Scotland (J. B. Stark, president)
Barwick Manufacturing Co., Ltd., Wichita, Kan. (William R. Barnes, president)
Blissfield Manufacturing Co., Blissfield, Mich. (P. C. Hall, vice-president-engineering)
Chicago Steel Furnace Co., Chicago, Ill. (R. M. Brand, president)
Dixie-Narco, Inc., Ransom, W. Va. (S. B. Rymer, Jr., chairman)
Douglas Home Appliances Division, Pennsylvania Range Boiler Co., Philadelphia, Pa. (William K. Goldstein, executive vice-

president)
The A. F. Holden Co., Detroit, Mich. (A. F. Holden, president)
Johnson Furnace Co., The, Cleveland, Ohio (James Crombie, vice-president and treasurer)
Johnson Heater Corp., Chelsea, Mass. (Kenneth S. Johnson, Sr., president)
Martin Oven Co., Inc., Rochester, N. Y. (William C. Agnew, president)
D. H. McCorkle Co., Berkeley, Calif. (D. H. McCorkle, Jr., president)
Merkon Corp., Franklin Park, Ill. (William F. Bohn, vice-president)
Norco, Inc., Los Angeles, Calif. (Norman H. Lee, president)
Star Manufacturing Co., St. Louis, Mo. (John L. Mozley, general manager)
Tetco Metal Products, Inc., Chicago, Ill. (George M. Teter, president)
Thermo-Pak Co., Arcadia, Calif. (G. N. Laushkin, sales manager)
V. & E. Products, Inc., Schuylkill Haven, Pa. (Joseph H. Eubanks, treasurer)
Vega Industries, Inc., Comforteer Div., Syracuse, N. Y. (D. S. Jaquith, manager)
Westinghouse Electric Corp., Laundry Equipment Dept., Mansfield, Ohio (Jack Lee, manager)

Individual Members

M. C. Adams, Adams Natural Gas Conversions, Newark, N. J.
Arthur O. Akers, Citizens Gas & Coke Utility, Indianapolis, Ind.
Richard W. Almond, Public Service Electric & Gas Co., Englewood, N. J.
Edgar H. Alms, Allied Gas Co., Rantoul, Ill.
Hans A. Altorfer, California Engineering Development Co., Orinda, Calif.

Parker S. Anderson, Superior Meter Co., New York, N. Y.
Arthur G. Austin, Trans-Canada Pipe Lines, Ltd., Toronto, Ont., Can.

Jack Battles, Jr., Pacific Gas & Electric Co., San Francisco, Calif.
Kenneth C. Beaudoin, Superior Meter Co., Inc., Portland, Ore.
Kenneth M. Bedinger, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
George H. Bell, Superior Meter Co., Punxsutawney, Pa.
Norman B. Bertolette, The Hartford Gas Co., Hartford, Conn.
William I. Blount, Colorado Interstate Gas Co., Colorado Springs, Colo.
C. Edward Boston, Dresser Manufacturing Division, South San Francisco, Calif.
J. Norman Bossert, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
William H. Bowie, Hunt Oil Co., Dallas, Texas
David W. Brillhart, Guaranty Trust Co. of New York, New York, N. Y.
Willard A. Burnett, Public Service Electric & Gas Co., Newark, N. J.

P. G. Caho, Mueller Co., Los Angeles, Calif.
George M. Carter, Jr., Minnesota Valley Natural Gas Co., St. Peter, Minn.
Jack Christiansen, Christiansen Distributing Co., Los Angeles, Calif.
Geo. W. Cissna, Superior Meter Co., Dallas, Texas
Cade C. Clover, Westcott & Greis, Inc., Tulsa, Okla.
Ira T. Collar, Jr., Neptune Meter Co., North Kansas City, Mo.
Albert Conti, Public Service Electric & Gas Co., Harrison, N. J.

John B. Copeland, Checker Motors Sales Corp., Kalamazoo, Mich.
Thalen L. Cross, Socony Mobil Oil Co., Inc., New York, N. Y.
William J. Curnow, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
Henry M. Curtis, Southern California Gas Co., Los Angeles, Calif.

Richard A. Dangers, Pacific Gas & Electric Co., San Francisco, Calif.
Luther J. Davis, Tucson Gas Electric Light & Power Co., Tucson, Ariz.
Stephen G. Day, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
T. J. Degan, Pacific Lighting Gas Supply Co., Los Angeles, Calif.
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Harry Dunfee, Arizona Public Service Co., Phoenix, Ariz.
Edgar A. Dunham Jr., Norge Sales Corp., Chicago, Ill.
Henry D. Dusenberre, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Milton J. Eser, Baltimore Gas & Electric Co., Baltimore, Md.

Joseph J. Fabyanski, Public Service Electric & Gas Co., Jersey City, N. J.
Robert D. Fagg, Pacific Gas & Electric Co., San Rafael, Calif.
M. M. Fidler, Mountain Fuel Supply Co., Salt Lake City, Utah
Paul R. Fry, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
Malcolm H. Furbush, Pacific Gas & Electric Co., San Francisco, Calif.

G. G. Geoffroy, Electrical Distributors, Ltd., Honolulu, Hawaii
John P. Glorieux, Guaranty Trust Co. of New York, New York, N. Y.
Gene Grant, Pacific Gas & Electric Co., Barstow, Calif.
R. E. Grant, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
George W. Graves, Texas Eastern Transmission Corp., Shreveport, La.
Lee Gray, Gray Distributing Co., Honolulu, Hawaii
Raymond J. Garrett, Cascade Natural Gas Corp., Seattle, Wash.

Herbert W. Haberkorn, Pacific Gas & Electric Co., San Francisco, Calif.
William T. Haddad, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
William P. Haendel, Superior Meter Co., Chicago, Ill.
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H. S. Harmon, Ashtabula, Ohio
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Thomas G. Humphreys, Jr., Alabama Gas Corp., Birmingham, Ala.

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Ronald T. King, Public Service Electric & Gas Co., Trenton, N. J.
Bernard J. Kopp, Public Service Electric & Gas Co., Newark, N. J.
Charles W. Krause, Neptune Meter Co., Long Island City, N. Y.

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William P. Larsen, Consolidated Edison Co. of N. Y., New York, N. Y.
Albert B. Lauderbaugh, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
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John M. Lyle, Day & Night Manufacturing Co., La Puente, Calif.

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John J. Moran, Neptune Meter Co., Long Island City, N. Y.
Robert L. Muirhead, Texas Eastern Transmission Corp., Shreveport, La.

Ray A. Newbold, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

Roman A. Oberle, Minnesota Valley Natural Gas Co., St. Peter, Minn.
John J. O'Connell, Jr., The Peoples Gas Light & Coke Co., Chicago, Ill.
Arnold Olson, Washington Natural Gas Co., Tacoma, Wash.
Gordon H. Oury, The Payne Co., La Puente, Calif.

Joseph D. Parent, The Peoples Gas Light & Coke Co., Chicago, Ill.
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William E. Preston, Northern Illinois Gas Co., Bellwood, Ill.
S. M. Purdy, Northwest Natural Gas Co., Portland, Ore.

William B. Ramsey, American Motors Corp., Detroit, Mich.
Milton S. Ray, Arizona Public Service Co., Phoenix, Ariz.
Karl B. Reese, Washington Natural Gas Co., Seattle, Wash.
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Thomas H. Rennell, Jr., Mystic Valley Gas Co., Malden, Mass.
David K. Ruth, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
Theodore P. Rykala, Michigan Consolidated Gas Co., Detroit, Mich.

James C. Saks, Trans-Canada Pipe Lines, Ltd., Toronto, Ont., Can.
John F. Sanders, Superior Meter Co., North Kansas City, Mo.
Harry B. Sargent, Jr., Arizona Public Service Co., Phoenix, Ariz.
Paul J. Schneider, The Sprague Meter Co., Edmonds, Wash.
Chris Scumas, California-Texas Oil Co., Ltd., New York, N. Y.
Karl Shaver, The Columbia Gas System, Inc., New York, N. Y.
Wade E. Shurtleff, The East Ohio Gas Co., Cleveland, Ohio
W. D. Skinner, Pacific Gas & Electric Co., Phoenix, Ariz.
Charles P. Smith, Alberta & Southern Gas Co., Ltd., Calgary, Alta., Can.
Leonard R. Smith, Jr., Public Service Electric & Gas Co., Burlington, N. J.
Anthony W. Sposaro, Jr., Public Service Electric & Gas Co., Harrison, N. J.

Robert C. Smith, Jr., Mystic Valley Gas Co., Malden, Mass.
 Robert H. Staniford, Long Island, New York
 Walter A. Stermer, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
 James E. Stoddart, Northern States Power Co., St. Paul, Minn.
 Peter C. Strebing, Public Service Electric & Gas Co., Newark, N. J.
 R. D. Sutherland, Dover Corp., C. Lee Cook Co., Los Angeles, Calif.

Stuart Talbot, The Peoples Gas Light & Coke Co., Chicago, Ill.
 Donald W. Tarbell, Walworth Co., Camden, N. J.
 Anne H. Terk, Whirlpool Corp., Los Angeles, Calif.
 Joseph P. Thomas, The Peoples Gas Light & Coke Co., Chicago, Ill.
 George E. Trought, Jr., Public Service Electric & Gas Co., Plainfield, N. J.



Clifford E. Paige

retired chairman of the board of The Brooklyn Union Gas Co., and past president of the American Gas Association, died Nov. 26. He was 74.

Mr. Paige was first associated with the gas industry in 1903, when he became an office boy with Springfield (Mass.) Gas Light Co. He later became manager of the Malden and Melrose (Mass.) Gas Light Co. and the Worcester (Mass.) Gas Light Co.

Mr. Paige joined Brooklyn Union in 1924 as a vice-president, after having served for several years as president of Beverly (Mass.) Gas and Electric Co. and vice-president of Charles H. Tenney & Co.

At Brooklyn Union, Mr. Paige became chief engineer in 1927, a director in 1932, president in 1935, and chairman of the board in 1940. He retired as president in 1951 and as chairman in 1952.

Mr. Paige was president of A. G. A. in 1931. Prior to that, he was a director of the National Commercial Gas Association, which merged with the American Gas Institute in 1919 to become the present A. G. A. Mr. Paige also served as a director, treasurer and vice-president of A. G. A., as well as president of the New England Gas Association.

In 1932, Mr. Paige was elected first vice-president of the International Gas Union. He served in that post until 1949.

A leader in civic affairs, Mr. Paige was chairman of the Kings County War Finance Committee during World War II, chairman of many Salvation Army fund drives in Brooklyn, Greater New York Salvation Army campaign chairman in 1943, an active member of the Brooklyn Chamber of Commerce, a

Stephen Valentine, Jr., Guaranty Trust Co. of New York, New York, N. Y.
 Robert J. Van Ess, Consumers Power Co., Jackson, Mich.

Ray E. Wachter, Northern Illinois Gas Co., Cicero, Ill.
 A. C. Walker, The Canadian Gas Association, Toronto, Ont., Can.
 Charles F. Waterman, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
 Robert W. Welch, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
 Bradford C. White, Warren Petroleum International Corp., New York, N. Y.
 Ross T. Whitten, Baltimore Gas & Electric Co., Baltimore, Md.
 Delbert R. Woffard, Texas Gas Transmission Corp., Owensboro, Ky.

Louis E. Yeager, Jr., Whirlpool Corp., St. Joseph, Mich.

strong supporter of the Boy Scouts, a trustee of Brooklyn Hospital, a director of the Brooklyn Institute of Arts and Sciences, vice-president of the Greater New York Safety Council, a director of the Downtown Brooklyn Association, and an advocate of the establishment of a "living endowment" at Brooklyn Polytechnic Institute.

Mr. Paige is survived by his widow, Alice, a daughter and a son.

Alexander Forward

retired managing director of the American Gas Association, died Dec. 21 at Coral Gables, Fla. He was 82. Major Forward had been with A. G. A. for 22 years until his retirement in 1945.

Major Forward began his career as a Virginia newspaper reporter and editor. He later served for four years as secretary to Governor Henry Carter Stuart of Virginia. He was subsequently appointed to the Virginia State Corporation Commission, which regulated that state's public utilities.

In 1918, he took a leave of absence from the commission to become a United States Army captain and the director of relief supplies for the Balkan states of Serbia, Rumania, Greece, Albania, Montenegro and Bosnia. He was later promoted to major and decorated as an officer with the Order of the Crown of Rumania.

Major Forward rejoined the Virginia commission in 1919. He became State Fuel Administrator in 1922, and was re-elected to the commission in 1923. Major Forward was also first vice-president of the National Association of Railway and Utilities Commissioners. He resigned from both posts in 1923 to join A. G. A. as secretary-manager. His title was later changed to managing director.

While Major Forward was with A. G. A., the Association grew from a small organization with a \$255,000 annual budget to the national trade association of the gas industry with a \$2 million annual budget.

CONVENTION CALENDAR

1959

APRIL

- 1-3 •GAMA Annual Meeting, The American Hotel, Bal Harbour, Fla.
- 6-9 •Operating Section Distribution Conference, Netherland-Hilton Hotel, Cincinnati, Ohio.
- 7-9 •Sales Conference on Industrial and Commercial Gas, Hotel Warwick, Philadelphia, Pa.
- 15 •The Metropolitan Gas Heating & Air Conditioning Council, A. G. A. Headquarters, New York City.
- 20-22 •A. G. A.-EEI Accounting Section Conference of Electric & Gas Utility Accountants, Sherman Hotel, Chicago, Ill.
- 23-24 •Indiana Gas Association, French Lick-Sheraton Hotel, French Lick, Ind.
- 27-29 •Southern Gas Association, Annual Convention, New Orleans, La.

MAY

- 3-6 •LPGA Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.
- 5-7 •Research and Utilization Conference, Hotel Carter, Cleveland, Ohio.
- 11-12 •A. G. A. Eastern Gas Sales Conference, The Netherland-Hilton Hotel, Cincinnati, Ohio.
- 18-19 •Operating Section Transmission Conference, Statler-Hilton Hotel, Dallas, Texas.
- 18-20 •A. G. A. Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.
- 19-21 •Pennsylvania Gas Association, Pocono Manor Inn, Pocono Manor, Pa.
- 20 •The Metropolitan Gas Heating & Air Conditioning Council, A. G. A. Headquarters, New York, N. Y.
- 21-22 •The Natural Gas and Petroleum Association of Canada, Hamilton, Ontario.
- 25-27 •Operating Section Production Conference, Hotel Sheraton, Rochester, N. Y.

JUNE

- 7-11 •American Society of Heating and Air Conditioning Engineers, Semi-annual Meeting, Vancouver, B. C.
- 11-12 •Accounting Section Managing Committee Meeting, The Homestead, Hot Springs, Va.
- 15-16 •A. G. A. National Public Relations Conference, Edgewater Beach Hotel, Chicago, Ill.
- 22-23 •Michigan Gas Association, Grand Hotel, Mackinac Island, Mich.
- 22-24 •American Society of Refrigerating Engineers, Annual Meeting, Lake Placid Club, Lake Placid, N. Y.
- 22-25 •Canadian Gas Association, Annual Meeting, Empress Hotel, Victoria, Canada.

Personnel service

SERVICES OFFERED

Washington Public Relations—have had more than 30 years experience in every phase of government work. Can expedite all matters needing attention in Capitol. Will welcome queries. Can furnish best of references. Married. 1942.

Labor Relations Director—nine years varied experience with utilities as representative of national unions; negotiating contracts, processing grievances before arbitration boards, unfair labor charges before NLRB, job evaluation analysis, writing contract clauses. Married, age 41. Resume on request. 1943.

Executive—17 years experience in management, sales, accounting, and engineering—as director, vice-president, and general manager and other capacities in natural gas utilities. My services are now available as a management adviser or other related capacities. 1944.

Management Operation Planning—recent president 12,000 meter natural gas utility. Nineteen years general management, distribution, utilization, rate making, finance. Graduate of leading eastern university. Will relocate. Living in West. Married, two children, age 43. 1945.

Industrial Gas Engineer—10 years of diversified experience in industrial gas engineering. Also qualified in commercial heating, water heating and domestic appliances. Desires greater responsibility and opportunity in expanding company. 1946.

Sales Manager—strong utility background, basically trained in residential sales of both gas and electrical appliances. Twenty years experience with top name appliance manufacturers. Product specialist, district, and regional sales manager. Traveled entire Eastern U. S., supervising and developing distributors, and dealers. Good dealer coordinator field merchandising man, highly promotional, with good contacts. Immediately available. Salary open. 1947.

Sales Engineer—have had 22 years experience as regional sales representative for well known heating equipment manufacturer recently gone out of business. Good record of success in sale of space heaters and unit heaters to utilities, distributors and dealers. Details upon request. 1948.

POSITIONS OPEN

Industrial Gas Equipment Sales Engineers—several most desirable territories available for active experienced representatives capable of recommending and selling quality gas burners, melters and heat treating furnaces direct to users, as well as for resale. Compatible with some other industrial burners and furnaces. Nationally advertised, 50-year company. Send full resume. 0878.

Manufacturer of Gas Equipment—need lifetime engineer capable of assisting medium-sized established industrial gas burner and furnace manufacturer with sales, recommendations, projects and other various phases in small office. Only honest, personable and determined persons who are most pleasant to work with and willing to prove themselves need apply. Vicinity New York City. Give complete resume, starting salary, recent photograph. 0879.

Gas Property Manager, New England—manufactured and bottled gas utility operation of a nationwide company has a challenging opening for a progressive, sales-minded manager. Send complete resume of experience. 0880.

Gas Engineer—opening in growing gas utility in western states. Graduate engineer to supervise construction, maintenance, operation, metering and pressure regulation. To design and plan system expansion and convert LPG operations to natural gas. Liberal benefits. Salary commensurate with experience and ability. Future work will also permit broad experience in other phases of public utility

work in addition to gas distribution. Reply stating experience, educational qualifications, salary and personal background. 0881.

Assistant Superintendent, Gas Distribution—with experience in maintenance, design and construction of mains and services. Should have working knowledge of regulating and control equipment. Prefer man under 40 with technical training. Position is with New England natural gas utility. Salary dependent on training, experience and ability. Replies should include resume. 0882.

Sales Supervisor—large and growing Midwest gas utility has opening for aggressive salesman in commercial department of sales division. Will contact restaurants, hotels and other commercial establishments for the promotion of gas installations and service. No traveling. Position offers excellent advancement opportunity. Gas company experience preferable; commercial and/or industrial experience essential. Salary open. Give age, education, experience and salary requirements. 0883.

Assistant Distribution Superintendent—a west coast Florida utility currently expecting the arrival of natural gas desires services of an experienced man between the ages of 25 and 40 years. Some technical education desirable. 0884.

General Manager—new natural gas utility, serving population 100,000, to be vice-president and general manager. Diversified and successful operating experience essential. Attractive salary, liberal benefits and stock option. All replies held in strictest confidence. 0885.

Sales Representative—Gas Odorants—for leading company in field. Full time travel, commission basis, established territory. Experience in gas distribution, operations. Engineering degree desirable. Send complete resume, including salary requirements, and recent photograph. 0886.

A. G. A. announces new publications issued during December

STATISTICS

- Monthly Bulletin of Utility Gas Sales, October 1958. Free.
- Monthly Bulletin of Utility Gas Sales, November 1958. Free.
- Mail Surveys, a paper by the Marketing Research Committee. This paper is an additional chapter to the *Marketing Research Handbook*. Free.
- Marketing Research Briefs No. 6, a newsletter. Free.

PROMOTION

- Gold Star Sticker. Five inches in diameter. Two cents each.
- Gold Star. Made of permanent metal. 5 1/2 cents each.

ACCIDENT PREVENTION

- 10th Annual Accident Prevention Conference papers. \$1.

INDUSTRIAL AND COMMERCIAL

- Rapid Heating of Steel for Hot Forming, Information Letter No. 95. Free.

(Convention)

- Air Condition Your Gas Rates, by Robert H. Willis. Free.
- New Equipment and Market Opportunities—Industrial Gas, by Orville E. Cullen. Free.
- New Equipment and Market Opportunities—Commercial Gas, by H. Vinton Potter. Free.
- Magnifying Manpower, by Prof. F. Alexander Magoun. Free.

OPERATING

- (Convention)
- The Operating Section Reports, by V. F. Bittner. 25 cents.
- Income Tax Problems in Connection with Underground Storage, by Duncan Lennon. 25 cents.
- The Planning of Distribution Service Centers, by Ray Colcord. 25 cents.
- Value Consciousness in the Drafting Room, by W. L. Healy. 25 cents.
- Value of the Serviceman as a Salesman, by John MacLarty. 25 cents.
- The Need for Manpower Development in the Gas Industry, by L. S. Storrs, Jr. 25

cents.

CONVENTION

- Advancing Our Frontiers of Service Through Air Conditioning, by Lyle C. Harvey. Free.
- Financing Economics of Today, by Albert H. Gordon. Free.
- Future Unlimited, by Chester A. Stackpole. Free.
- Gas Builds a Greater America, by Robert W. Otto. Free.
- Gold Star Revue: A Very Important New Development in the Gas Industry, by W. M. Jacobs. Free.
- Refrigeration—Key to Greater Sales, by Elisha Gray II. Free.
- The Threat of Government Operation—Our Common Problem, by J. W. McAfee. Free.
- A Time for Greatness, by Glenn W. Clark. Free.
- Current Economic Trends and Their Implications, by M. R. Gainsbrugh. Free.
- What Is Ahead in Labor-Management Relations, by J. J. Healy. Free.

A.G.A. advisory council

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Man. Dir.—W. H. Dalton, 2532 Yonge St., Toronto, Ontario.

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Sec.-Tr.—R. A. Steele, Citizens Gas & Coke Utility, 2020 N. Meridian St., Indianapolis, Ind.

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Sec.—Robert L. Smith, 203 West Second St., Frederick, Md.

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Sec.-Tr.—M. G. Kendrick, Michigan Consolidated Gas Co., Detroit, Mich.

MID-WEST GAS ASSOCIATION

Pres.—Henry R. Slocum, Central Electric & Gas Co., Columbus, Nebr.
Sec.-Tr.—Everett E. Baxter, P.O. Box 137, Branson, Mo.

NATURAL GAS AND PETROLEUM ASSOCIATION OF CANADA

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Sec. and Asst. Tr.—H. B. Fry, United Gas & Fuel Co. of Hamilton, Hamilton, Ontario.

NEW ENGLAND GAS ASSOCIATION

Pres.—A. W. Johnston, Boston Gas Co., Boston, Mass.
Man. Dir.—Clark Belden, 10 Newbury St., Boston, Mass.

NEW JERSEY GAS ASSOCIATION

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